ADMINISTRATION REPORT

OF THE

INDIAN STORES DEPARTMENT

FOR THE YEAR

1927-28

CALCUTTA: GOVERNMENT OF INDIA
CENTRAL PUBLICATION BRANCH
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Price Rs. 3-4 or 5s. 6d.

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CHAPTER I.

Summary.

1. **General.**—The following report records the more important features of the work of the Indian Stores Department during the year 1927-28. The progress made in the previous five years of the Department's existence was fully maintained. Indeed, in some directions, notably the purchase of engineering and miscellaneous stores and the inspection of stores, a further advance has been noted.

2. **Activities of the Purchase Branch.**—The value of the purchases made during the year diminished by about Rs. 25 lakhs ; but, as has been explained in the report, this result is in no way attributable to any real contraction of the business of the Department. As a matter of fact, the various purchase organisations were more fully occupied during the year under review than in any year previously. In effecting purchases every effort continued to be made to utilise the resources of India to the fullest extent compatible with efficiency and economy, and the results achieved, more especially, in respect of textile goods, as is to be expected, were as satisfactory as those in the past years.

3. **Activities of the Inspection Branch (general).**—The largest measure of the progress made during the year occurred in the Inspection Branch. The Calcutta Inspection Circle, notwithstanding the curtailment of the wagon construction programme, one of the more important classes of work hitherto undertaken by it, was actually entrusted with a larger volume of business than in any previous year,while the outturn of the Bombay Inspection Circle exceeded that of 1926-27 by over 66 per cent.

4. **Activities of the Metallurgical Inspectorate, Jamshedpur, and the Government Test House, Calcutta.**—The services of the Metallurgical Inspectorate and the Government Test House were more fully utilized during the year than in past years. The number of tests and analyses carried out by each of these organisations exceeded the previous records, though there was a slight decline in the tonnage of the products of the Tata Iron and Steel Co. inspected by the Metallurgical Inspectorate. This was, however, more than counterbalanced by accretions of other work to that organisation, with the result that its earnings exceeded those of the past year.

5. **Specifications and advisory work.**—These functions of the Department continued to receive the attention which their importance merits. A number of existing specifications were revised and brought up-to-date, and an equal number of new specifications for stores of various descriptions were

framed during the year. The Department was again entrusted with the scrutiny of several schemes of great financial importance ; and it availed itself of every opportunity of affording technical advice and assistance to manufacturers. Examples of its effo ts in this direction are mentioned in paragraphs 22, 36 and 60 *infra*.

6. **Ind nts on the India Store Department, London.**—The results of the year 1927-28 in this sphere of the Department's activities seem to indicate that the work done by the Department in the past in the matter of the scrutiny of indents on the India Store Department, London, is beginning to bear fruit. The Department found it necessary during the year to question the inclusion in these indents of a far less number of items than formerly, and this development suggests that the resources of India are being utilised by consuming Departments to a greater extent than hitherto.

7. **Financial position.**—The data at present available in respect of the receipts of the Department and of the expenditure directly debitable to its budget grant is incomplete, but it indicates that the financial position at the end of 1927-28 is likely to be much the same as it was at the close of 1926-27.

CHAPTER II.

Organization.

8. **Changes in organisation during 1927-28.**—Apart from the appointment of two probationary Inspectors as a preliminary to the introduction of a scheme (the details of which are under consideration) for the training of suitable Indians for appointment to the Inspection Branch of the Department, no change of any importance was made in the organisation during the year 1927-28 ; but a few additions were made to the strengths of the superior and subordinate establishments.

9. **Organisation of the Department at the end of the year.**—Appendix I gives a conspectus of the organization as it stood at the end of the year 1927-28, the appointments added during the course of the year being shown in italics.

Recruitment of the gazetted staff.—During the year thirteen gazetted officers were appointed, of whom eight were Indians and five non-Indians. Four of the latter were recruited through the High Commissioner for India, as it was not found possible to recruit qualified Indians for the particular posts. Of the Indian officers who were recruited one was promoted from the subordinate establishment, and two (*ex*-State scholars in Metallurgy) were selected on completion of their course of training in England. The remaining six officers, one European and five Indians, were recruited through the Public Service Commission.

10. **Numbers of European and Indian Officers in the Department.**—The numbers of Europeans and Indians holding gazetted appointments in the Department at the end of the year 1927-28 were 32 and 30 respectively.

The graph in Appendix II indicates the respective proportions of Indians and non-Indians in the gazetted staff of the Department at various stages since its constitution in 1922.

11. **Recruitment for the subordinate technical staff.**—This class of subordinate staff was recruited in accordance with the established principles. No non-Indian was appointed.

CHAPTER III.

Work done.

12. **Procedure.**—In exercising the functions devolving on it, the Department continued to observe the procedure described in paras. 43 to 49 of the report for 1925-26.

13. **Progress in extending the field of operations.**—There was a decline during the year in the value of the purchases of textile goods; but, as will be observed from para. 16 *infra*, this is not attributable to the withdrawal from the Department of that class of business by any of its clients. For the purchase of other classes of stores, and for the inspection of stores, the services of the Department were utilised by a larger number of Departments of the Central and Provincial Governments, Railway Administrations and others than hitherto. Particulars of this development are exhibited in Appendices III and XII.

14. **Purchase of Stores for the major local Governments.**—In para. 17 of the report for 1926-27 mention was made of the action taken by some of the major local Governments in formally constituting the Indian Stores Department an agency for the supply of stores required by them and it will be of some interest to note the effect which that action has produced on the business transacted by the Department on behalf of these authorities.

The volume of business entrusted to the Department by Government Departments in the Central Provinces was much less than in the previous year, the value of the purchases made having declined from Rs. 7,43,000 to Rs. 1,21,000. On the other hand, the Governments of Bombay, Bengal and the Punjab utilized the Department to an appreciably larger extent, the value of the purchases effected for these Governments having risen from Rs. 43,06,000, Rs. 92,000 and Rs. 43,51,000 to Rs. 46,72,000, Rs. 2,79,000 and Rs. 46,36,000 respectively. These results may possibly be the natural outcome of the differential status accorded to the Stores Department in the stores purchase arrangements of the Government of the Central Provinces on the one hand and of the other three Governments on the other hand. In the former case the Department is merely one of the agents which may be employed for the purchase of certain descriptions of stores, while in the latter it is with certain qualifications the sole agent to be employed for the purchase of such, or other stores. The reduction in the volume of work received from the Central Provinces may, however, be due merely to a smaller demand arising for plant and machinery and their component parts. The wo k undertaken for the remaining local Governments, which have not accorded the Stores Department,

a definite place in their stores purchase arrangements, exhibits considerable variations, some of these Governments having utilised the services of the Department to a greater, and others to a lesser, extent than hitherto. Outstanding examples are the Governments of Madras and Burma. The value of the purchases made for the former was Rs. 8,71,000 less than in the previous year, while it was Rs. 6,51,000 more in the case of the latter.

15. **Work of the Purchase Branch.**—There was an increase of 31 and 25 *per cent.* respectively in the total number of indents and items dealt with in 1927-28, as will be observed from the sub-joined table :—

Organization.	No. of Indents.		No. of Items.	
	1926-27	1927-28	1926-27	1927-28
Headquarters	3,925	4,886	23,193	27,028
Calcutta	2,344	2,805	16,916	19,505
Bombay	1,079	1,745	6,989	8,911
Karachi	1,213	1,751	8,960	14,669
Total .	8,561	11,187	56,058	70,113

Details of purchase work done during the year are exhibited in the diagrams given in Appendix VI and it will be noticed from the fifth of those diagrams on page 43 that the total value of the purchases effected fell to Rs. 3,73,03,846 from Rs. 3,98,82,245. The reasons for this decline are explained in the next paragraph.

16. **Purchase of textile stores.**—The textile purchases amounted to Rs. 1,18,81,913 in value, against Rs. 1,62,86,293 during 1926-27. In other words, there was a decrease of 27 per cent. The figure of 1926-27, as will be seen from para. 19 of the previous year's report, was swollen by the inclusion in the transactions of that year of certain purchases of substantial value which, but for the late receipt of indents, would have been effected during the year 1925-26 ; but, even if allowance be made for this increment, the figure of the year under report remains lower than that of the previous year. This decrease does not, however, indicate that less resort was made to the Department for the transaction of this class of business. It is due partly to more extended competition, resulting in the submission of more favourable quotations to the Department, and partly to an alteration during the year of the procedure in force in the Army Department for placing their demands for such stores on the Indian Stores Department, the effect of which is to transfer to a larger extent than hitherto the operation of purchase to the year in which the stores are delivered and paid for. As an indication of the fact that this class of business

is not decreasing in volume, it may be mentioned that the Department purchased for other authorities textile goods to the value of Rs. 6½ lakhs more than in 1926-27.

Preference, without the sacrifice of economy and efficiency, continued to be given to goods of Indian origin and manufacture. The value of such goods amounted to 96·8 per cent. of the total expenditure on this account (*vide* Appendix IV).

17. **Purchase of engineering and miscellaneous stores.**—The value of the engineering and allied stores which were purchased during 1927-28 amounted to Rs. 2,54,21,933 as against Rs. 2,35,95,952 in 1926-27. Approximately one-half of the former amount was expended on stores classified as "Engineering," such as, electrical power generating plant, excavating machinery, workshop machinery, steel structures, cranes, sluice and regulator gates, steel barges, pipes, steel tanks, road rollers, electric motors, fans, cables, lamps, meters and other accessories. The remaining one-half represents the value of hardware and miscellaneous stores, such as, rubber tyres and tubes, cement, oil fuel, oils, (lubricating, axle, cylinder, linseed, castor, kerosene), paints, varnishes and painters' materials, creosote, steel sections, sheets, barbed and plain wire, railway sleepers (sal and deodar), petrol, asphalt, asbestos sheets, tipping wagons, rails, and permanent-way materials and general ironmongery.

Wherever possible, notably in respect of cement, oils, paints and steel work, stores of Indian manufacture and origin (wholly or partly) were obtained, but in the case of other Engineering plant and machinery the bulk of the expenditure was necessarily incurred on the products of foreign countries.

The Central Departments, in particular, the Army Department, contributed most largely to the increase in the volume of these transactions, the purchases on their behalf having risen by 47 per cent. A smaller volume of work was transacted for the Provincial Governments, Railway Administrations, Indian States and public bodies.

18. **Distribution of purchases.**—The value of the purchase work undertaken during the past five years is shown in Appendix IV. The most suitable sources of supply were invariably resorted to, and, as will be observed from the series of diagrams and statistics given in Appendix V, the business of the Department was as widely distributed as in the past.

19. **Details of important purchases.**—The more important purchases which were made are specified below :—

TEXTILES.	Amount.
	Rs.
1. Tents and components	14,86,000
2. Blankets, woollen	12,09,000
3. Drill khaki and jean khaki	11,27,000
4. Cotton waste	7,47,000
5. Drill, white and coloured	6,03,000
6. Socks and stockings, woollen	5,41,000
7. Paulins and waterproof canvas	4,57,000
8. Waistcoat, Cardigan jackets & jerseys	3,66,000

TEXTILES.	Amount.
	Rs.
9. Jhools and rugs	3,40,000
10. Yarn, woollen and cotton	3,38,000
11. Pugree cloth, khaki and other colours	3,22,000
12. Cordages, ropes and twine	2,99,000
13. Calico, muslin and cambric	2,57,000
14. Bags, postal, flax and jute canvas, proofed and unproofed	2,40,000

TEXTILES.

	Amount.
	Rs.
15. Serge	2,11,000
16. Sheets, barrack	2,01,000
17. Flannelette	1,83,000
18. Sheets, hospital	1,52,000
19. Dosuti	1,51,000
20. Durries, cotton and woollen	1,42,000
21. Wool, cotton, absorbent, surgical	1,28,000
22. Canvas	1,19,000
23. Hessians and gunnies	1,09,000
24. Blanketting cloth	1,07,000
25. Coir fibre	1,04,000
26. Chutt	1,02,000
27. Putties, woollen and cotton	96,000
28. Twill, cotton, khaki and white	86,000
29. Comforters and caps, woollen	81,000
30. Rope, manilla, coir	81,000
31. Towels and towelling cloth	78,000
32. Greatcoat cloth	72,000
33. Alpaca	70,000

ENGINEERING AND MISCELLANEOUS.

	Amount.
	Rs.
34. Tyres and tubes, rubber	21,60,000
35. Cement	20,37,000
36. Creosote	12,80,000
37. Sluice gates and regulators	11,29,000
38. Steel sections	11,04,000
39. Excavating machinery	9,08,000
40. Electric fans, lamps and fittings	8,87,000
41. Steel structures	8,43,000

ENGINEERING AND MISCELLANEOUS—*contd.*

	Amount.
	Rs.
42. Electrical power generating plant	8,27,000
43. Oil, fuel	7,75,000
44. Oil, lubricating, miscellaneous	7,19,000
45. Paints	5,78,000
46. Pipes and fittings	5,50,000
47. Zinc ingots	2,90,000
48. Sheets, galvanized, plain and corrugated	2,87,000
49. Electrical driven haulage gear	2,72,000
50. Engineering plant and equipment	2,50,000
51. Road rollers	2,23,000
52. Steel barges	1,97,000
53. Electrical distribution material	1,84,000
54. Kerosene oil	1,54,000
55. Workshop machinery	1,42,000
56. Linseed oil, raw and double boiled	1,10,000
57. Maconite cables and fittings	1,08,000
58. Barbed wire	1,05,000
59. Railway sleepers, sal, deodar, &c.	1,05,000
60. Asphalt	87,000
61. Rock crushing and granulating plant	65,000
62. Petrol	65,000
63. Stoneware pipes	63,000
64. Culverts, Acme and Armco	60,000
65. Baling wire	59,000
66. Cranes	55,000
67. Timber packing cases	51,000

20. **Provincial Purchase Agencies—The Calcutta Purchase Circle.**—The work of this Circle shows a satisfactory increase, notwithstanding that there was a fall in the value of the orders placed by it from Rs. 24,68,189 to Rs. 21,47,405. This fall is attributable partly to the existence of a more favourable market than in 1926-27, more notably in the case of imported steel, and partly to the receipt of smaller demands for textile stores. The latter was, however, to some extent, counterbalanced by an increase of the demands for engineering stores. The number of indentors increased from 238 to 285, and the number of indents and items received amounted to 2,805 and 19,505 as against 2,344 and 16,916 during 1926-27. The orders placed numbered 6,580 against the pre ious year's figure of 5,559.

21. **Bombay Purchase Circle.**—The activities of this Circle also continue to expand. The number of its clients has increased from 125 to 140, and this naturally reacted on the extent of the business undertaken by it. The total number of indents dealt with during the year amounted to 1,745, comprising 8,911 items, and the 2,873 orders which were placed amounted in value to Rs. 11,25,314, which represents an increase of 51 per cent. over the corresponding figure of the previous year.

22. **Karachi Purchase Agency.**—The record of the Karachi Agency is similarly one of progress in all directions. Its clientēle remained practically

stationary, but it dealt with a substantially larger volume of business than in the previous year. The number of indents rose from 1,213, comprising 8,960 items, to 1,751, comprising 14,669 items. Orders to the number of 5,239 and the aggregate value of Rs. 13,74,347 were placed. The corresponding figures in 1926-27 were 2,761 and Rs. 9,10,470 respectively.

An interesting item in the work of this Agency was the purchase of 130 tool boxes for the Royal Air Force. Formerly such boxes were obtained direct from England. The Department was, however, able to arrange for their manufacture locally at lower prices than that paid for the imported article in the past. The work was executed in accordance with a stringent specification supplied by the indentor; the material used was of the best kind, and the workmanship was entirely satisfactory.

23. **Advantages of local purchasing agencies.**—These local purchasing agencies have entirely justified their establishment, and they promise to prove of increasing utility and value to the Department itself and to the general body of consumers.

24. "**Running**" and "**Rate**" **contracts.**—During the year under review "running" or "rate" contracts existed for 131 classes of stores, the particulars of which will be found in Appendix VII. The number of such contracts in force in 1926-27 was 112.

25. **Comparison with the London Stores Department.**—A comparison is made in Appendices VIII and IX of the expenditure on stores and freight incurred by the India Store Department, London, with the value of the purchases made by the Indian Stores Department during the four years 1923-24 to 1926-27, the figures in the former case having been converted into Indian currency at the rate of 1*s.* 6*d.* to the rupee. Appendix VIII also exhibits a comparison of the number of contracts placed by the two organizations during the same period.

26. **Administrative Inspection Branch at Headquarters.**—The increase of the work of the Purchase Branch as well as that of the Inspection Circles, to which reference will be made later, naturally reacted so as to impose a heavier burden than in any of the previous years on the staff of the administrative Inspection Branch, the work of which expanded in all directions, as will be observed from the following paragraphs.

27. **Specifications.**—Fifty-nine specifications were revised during the year, and 60 new specifications were framed, of which 22 were for special classes of stores, the more important of these being :—

1. Road roller, steam operated, coal or wood fired.
2. Summer and winter uniforms for the staff of the East Indian Railway.
3. Sluice gates for the Panjnad Barrage on the river Sutlej, thirty-three gates, clear width of opening 60′—0″, 18′—6″ deep, for the Punjab Public Works Department.
4. Gates for the under-sluices of the weir across the river Damodar.
5. Steel barges of capacity up to 100 tons of stone for the Lloyd Barrage Works, Sukkur.
6. Hand chemical fire extinguishers.

Another specification which is worthy of special notice is that relating to safes for use in the Indian Posts and Telegraphs Department. Formerly the safes used by that Department were of European manufacture. The specification drawn up by this Department, however, enabled safes of Indian manufacture to compete with those manufactured abroad, and resulted in a rate contract being placed with a manufacturer in India for the supply of the requirements in this respect of the Posts and Telegraphs Department for a period of two years.

A list of all the specifications which were current at the end of the year 1927-28 will be found in Appendix X.

28. **Schedules of Requirements.**—Appendix X-A contains particulars of all the schedules of requirements which were current during 1927-28. They include one which was revised, and 187 which were framed during the year, the more important of the latter being :—

1. Diesel oil engine driven dragline excavator, caterpillar type, complete with electrical equipment, *for the Sutlej Valley Project, Punjab.*
2. Goliath Crane for Railway Transhipment Yard at Santahar on the Eastern Bengal Railway.
3. Steel road bridges for Lloyd Barrage and Canals Construction.
4. Electrical generating plant and equipment for the Military Engineering Services Power Station at Nasirabad, Rajputana.
5. Sea-going steam launch for the Marine Department, Port Blair, Andamans.
6. Aeroplane Hangars for the Royal Air Force, India.
7. Ice-making and Refrigerating plant for Government House, Delhi.
8. Electrical sub-station plant and equipment for His Majesty's Mint, Calcutta.
9. Internal combustion Locomotives, 2′—0″ Gauge, for the Irrigation Department, Bengal.

29. **Technical scrutiny of schemes.**—The Department undertook the technical scrutiny of 27 schemes prepared by other authorities and referred to it for advice. The aggregate value of the orders placed in respect of these schemes amounted to Rs. 27,41,000.

30. **Erection at site orders.**—In addition to completing the work on several such orders which were placed in previous years, 79 orders which provide for the erection and putting into service of plant and equipment at site of works, of the aggregate value of Rs. 38,16,000, were dealt with during the year.

31. **Bounties on wagons.**—Sixty-eight certificates were issued for the payment of bounties on wagons and underframes.

32. **Pamphlets issued.**—The following pamphlets were issued during 1927-28 :—

1. A revised and enlarged edition of the Report on Portland Cement of Indian manufacture which was originally prepared by the late Indian Munitions Board.



NERBUDDA BRIDGE. GREAT INDIAN PENINSULA RAILWAY.

Consisting of 6 spans each of 165′-0″, and 4 spans each of 40′-0″ resting on steel trestles 105′ high. Built entirely of Tata's steel. Tonnage of steel about 3,000.

2. Production and inspection of rails at the works of Messrs. The Tata Iron and Steel Co., Ltd., Jamshedpur.

3. Hammer tests on rails rolled by Messrs. The Tata Iron & Steel Co., Ltd.

33. **Work done by the Inspection Branch.**—The work of the Inspection Agencies generally continues to develop, as will appear from Appendices XI and XII.

The Calcutta Circle remains the largest and most important, but the Bombay Circle is expanding rapidly.

34. **Calcutta Inspection Circle.**—An important feature of the work devolving on the Calcutta Circle has always been the inspection of wagons and carriage underframes. The necessity which had arisen for curtailing the construction of broad gauge wagons had, therefore, an appreciable effect on the business entrusted to the Circle. Fortunately the services of the Circle were utilised to a greater extent than hitherto by the Railway Administrations themselves, with the result that the value of the work inspected by the Circle during the year actually exceeded the value of that undertaken during any of the preceding years. Up to 1927-28 the highest figure attained was Rs. 3,41,28,881 in 1926-27 : in 1927-28 the corresponding figure amounted to Rs. 3,44,46,600. As a corollary, there was a substantial increase in the number of demands for inspection, these amounting to 9,412 against 8,328 in the previous year. As in the past, the greater portion (over 75 per cent.) of the work was undertaken for Railway Administrations.

35. **Important orders inspected.**—During the year the more important orders under inspection were :—

1. 28 spans of built up lattice girders, each of 157′ span, for the lower Sone Bridge under construction in India for the East Indian Railway. The approximate value of this order amounts to Rs. 16 lakhs, and the aggregate weight of the spans will be about 6,000 tons.

2. 32 spans of 83′ plate girders constructed during the year for the Bengal Nagpur Railway.

In addition, an important order for bridge work was inspected on behalf of the Orissa Feudatory States, and orders for cast iron pipes and specials for the Gwalior State and the Karachi Municipality were supervised.

36. **Bombay Inspection Circle.**—This Circle in 1927-28 more than maintained the progress which it had made during the previous year. There was a substantial increase in the number of the orders placed with it, from 3,747 to 4,634, and this was accompanied by a remarkable increase in the value of the work actually inspected. In 1926-27 this figure was Rs. 68,08,449 ; in 1927-28 it rose to Rs. 1,13,16,031. The Railway Administrations continued to make considerable use of the services of the Circle, a new development in this respect being the decision of the Great Indian Peninsula Railway to entrust to it the inspection of the permanent way material purchased by that Railway from firms in and around the city of Bombay. The employment of the Circle

for this class of work gave it an opportunity of affording valuable help in the improvement of the quality of points and crossings locally manufactured.

The more important items of work which were under inspection during the year were :—

1. Dohad workshops for the Bombay, Baroda and Central India Railway. The approximate amount of steel used in these buildings is 4,500 tons, and the value amounts to Rs. 11,66,102.
2. Electric Car Sheds for the Great Indian Peninsula Railway at Kurla This work was handled throughout by the Indian Stores Department, and inspection was carried out on both fabrication and erection. Value Rs. 4,21,435.
3. Mahalaxmi overbridge and overhead booking offices and circulating area. The bridge consists of 5 spans of 56′—0″. Value Rs. 3,27,250.
4. Steelwork for eleven sub-stations for the Great Indian Peninsula main line electrification scheme. Value Rs. 4,12,494.
5. Steelwork for Main Line Station building and extensions to Victoria Terminus station. Value Rs. 6,56,505.

37. **Test House at Bombay.**—A number of additions were made to the apparatus installed in the Test House at Bombay comprising :—

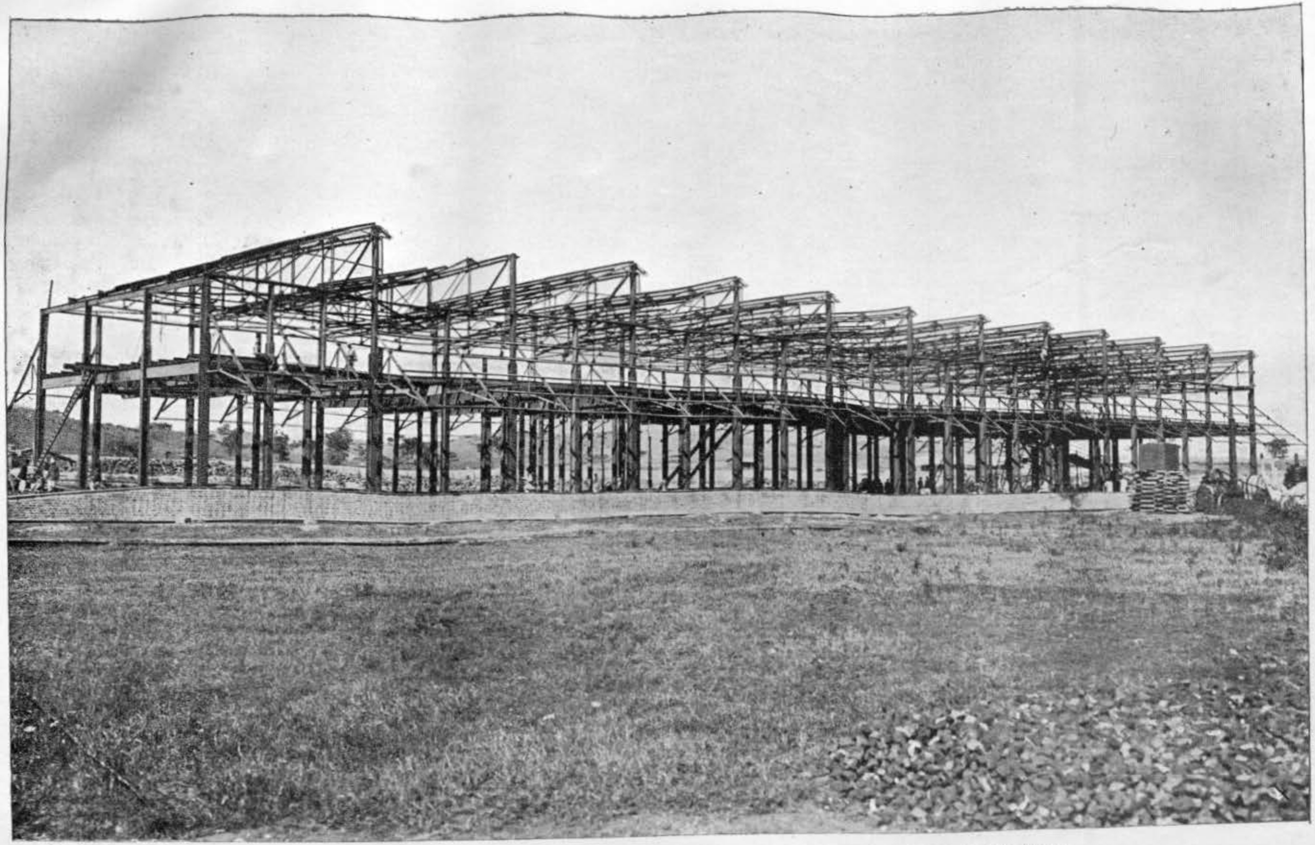
1. Budenburg combined dead weight tester and screw press.
2. Vacuum gauge test pump.
3. Complete apparatus and equipment for testing cement to B.E.S.A. and other standards.
4. Combined Elliot moving coil type century testing set 5 range portable type, consisting of voltmeter ammeter and suitable shunt to read up to 600 amperes in current side.
5. Combined Elliot A. C. dynamo-meter type together with a wattmeter in the same case.
6. Bridge megger testing set, 1 000 volts.
7. Post Office type Wheatstone bridge.

Full advantage could not be taken of the new apparatus which was obtained during the year, but nevertheless some valuable tests and experiments were carried out on several indigenous products.

There is a real need for a Test House at Bombay, and, although the organization which has been established is at present operating within a comparatively limited sphere, there is every likelihood that it will within the next few years prove to be of considerable value in the development of the manufacturing industries in Western India.

A list of the apparatus installed at the Test House is given in Appendix XVI.

38. **Cawnpore Inspection Circle.**—The year under review shows an increase in the number and value of the orders received, these having risen



DOHAD WORKSHOPS. BOMBAY, BARODA AND CENTRAL INDIA RAILWAY.

View of general stores in course of erection. This is the first of a series of buildings for which the total quantity of steel used aggregates 4,500 tons.

from 1,113 to 1,209, and from Rs. 59,75,772 to Rs. 64,47,198 respectively; but there was a reduction from Rs. 50,80,447 to Rs. 46,55,512 in the aggregate value of the stores and plant which were actually inspected. The staff of the Circle was, however, employed to an appreciable extent in inspecting work which has been accounted for in other Inspection Circles.

As was mentioned in the report for 1926-27, the work of this organisation consists in the main of the inspection of imported plant and machinery for electrical and other projects. The following are the more important installations which were successfully completed and put into service during the year 1927-28 :—

1. Electrical power generating plant for the Railway Administrations or the Military Engineering Services at Bhatinda, Amritsar, Peshawar, Ambala, Nagpur, Jubbulpore, Ferozepore and Muktesar.
2. Pumping plant for the Public Works Department and the Military Engineering Services at Multan and Landikotal respectively.
3. Excavating plant at Bahawalpore, Hafizabad and Dera Nawab.

39. **Karachi Inspection Agency.**—The fall noticed in paragraph 43 of the report for 1926-27 in the value of the orders inspected by this Agency was more than made up in 1927-28, in which year the value of the stores inspected reached the figure of Rs. 56,14,202, or, approximately, Rs. 15 lakhs in excess of the total for 1925-26. This rise was accompanied by an increase in the number of orders actually dealt with during the year from 3,303 to 7,750. A notable feature of the work of this Circle is the increasing utilization of its services by authorities who make their own purchases. The extent of this increase may be gauged by the fact that while in 1925-26 the value of this class of work dealt with amounted to Rs. 83,476 only, it was Rs. 7,19,649 during the year under report. The Railways were the largest indentors in this particular respect, but a substantial quantity of work was undertaken for the Government of Bombay and private firms. As an indication of the growth of manufactures in Sind, it may be mentioned that the Agency inspected engineering stores, structural work, bodies for motor lorries, steam launches, tanks, etc., actually manufactured in Karachi to the aggregate value of approximately Rs. $6\frac{1}{4}$ lakhs.

40. **Madras Inspection Branch.**—This Agency continued to operate in a restricted sphere, and the work dealt with by it was not considerable, amounting to Rs. 5,39,552 in value, a figure which is a good deal lower than the corresponding figure of the previous year. As explained, however, in paragraph 44 of the report for 1926-27, it is necessary to maintain an organization of this description at Madras.

41. **Inspection of firms and technical advice to manufacturers.**—The inspection of firms applying for enrolment on the list of suppliers maintained by the Department and the furnishing of advice and instruction to manufacturers continue to be important features of the work of the Inspectorates. Instances of the assistance given in the latter respect are furnished in paragraphs 22, 36 and 60.

CHAPTER IV.

The Metallurgical Inspectorate.

42. **Work done.**—It will be observed from the diagrams in Appendix XI (vii) that, while there was a slight decrease of 5,200 tons in the weight of the material inspected by the Metallurgical Inspectorate during the year as compared with the previous year, the number of tests carried out on samples exceeded that of the preceding year by approximately 300, and moreover that there was a substantial increase both in the total value of the stores inspected and in the amount of fees earned by the Inspectorate.

43. **Inspection.**—The inspection and testing of the products of The Tata Iron & Steel Company, Ld., which embrace rails, fishplates, steel sleepers, structural steel, tie bars, keys, cotters, etc., continued to form the major portion of the work of the Inspectorate; but a considerable amount of work was also carried out at the works of the Indian Cable Company, the total value of the materials inspected thereat amounting to Rs. 7,35,527. It is anticipated that this class of work will increase still further during the coming year.

44. **Sampling and analyses.**—The sampling and analyses of Ammonium Sulphate diminished as a result of the regularity which has been obtained in the composition of the output. Hence the need for frequent sampling no longer exists. The number of samples taken and analysed was 106, representing 4,420 tons of sulphate, in comparison with 201 and 8,853 respectively during 1926-27.

45. **Estimations carried out in the laboratory.**—The graphs in Appendix XIII show in a comparative form the number of estimations of carbon, silicon, manganese and phosphorus effected from year to year. It will be observed therefrom that the progress made in previous years was continued during the year 1927-28. On the other hand there was a small decrease in the number of physical tests carried out during 1927-28, which amounted to 59,573 as against 64,300 during 1926-27.

46. **Investigations.**—The number of investigations made during the year amounted to 160, and the revenue derived therefrom to Rs. 1,626.

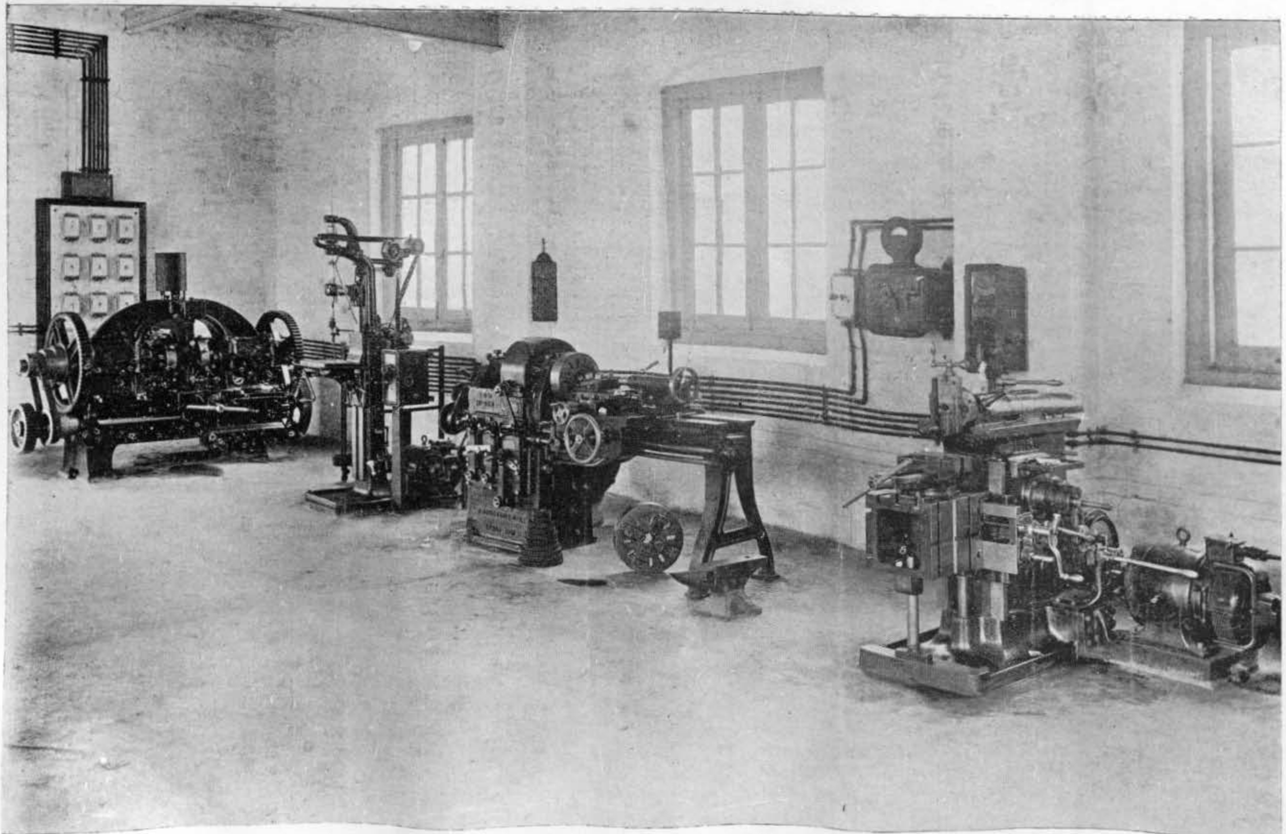
47. **Bounties on steel rails, fishplates and ingots.**—No rails, fishplates and ingots manufactured during 1927-28 were certified for the payment of bounties, but a sum of Rs. 2,92,080 was paid to the Tata Iron & Steel Company, Ld., in respect of bounties earned during 1926-27.

48. **Inspection and testing equipment.**—A complete list of the apparatus installed at the Inspectorate will be found in Appendix XIV.

CHAPTER V.

The Government Test House, Calcutta.

49. **Work done.**—The Government Test House made further progress during the year under review, as will be seen from the diagrams in Appendix



A VIEW IN THE GOVERNMENT TEST HOUSE LABORATORY, CALCUTTA. THE MACHINE SHOP.

XI(viii). There was an increase in the quantity of work actually carried out, though the fees earned decreased by about Rs. 9,400. The number of samples examined increased from 7,115 to 7,525. Of these 3,894 were physical tests, 2,226 chemical tests and 1,405 oil tests.

50. **Physical section.**—The work in this section has shown substantial increases from year to year partly owing to the increased scope of the work now undertaken, and partly due to increases in the volume of work under individual heads. The main increases during the year hove been in the cement, textile and electrical tests.

51. **Electrical section.**—Electrical testing work has been greatly hampered by insufficiency of space and apparatus, and the question of extending the laboratory in order to provide further facilities is under consideration.

52. **Chemical laboratory.**—The number of samples reported on during the year was 2,226. The number of samples actually examined, however, was somewhat higher than this.

The number of coal samples examined was 343 against the previous total of 538. This decrease is due to the smaller number of samples received from the Coal Grading Board. Apart from coal, there are no variations of any importance in the numbers of samples reported on as compared with those in the previous year. On the whole there is a slight increase.

53. **Paints.**—The increase in the number of paint samples reported on, which was mentioned last year, was maintained in the present year during which 803 samples were dealt with. In addition to these, 100 samples were analysed in connection with practical paint tests.

Work has continued on the standard sample scheme for paints mentioned last year. This scheme will, it is believed, eventually result in economy by the elimination of unnecessary repetition, but up to the present has involved a considerable amount of work. In connection with this scheme 962 samples in all have been received, of which 676 have been analysed and 286 carried over to the year 1928-29.

54. **Varnish.**—Exposure tests on paints have been continued, and in the year under review have been supplemented by tests of varnish. Eighty-two painted panels and 38 varnished panels were exposed during the year, two new test frames being erected to accommodate these panels. A number of paints was made in the laboratory. The total number of panels exposed in the past three years is 364.

55. **Oil laboratory.**—The number of samples reported on was 1,405 against 1,583 in the previous year. The decrease probably represents a falling off of work under the standard samples scheme, of which one of the main objects was to reduce the number of samples received.

Apart from samples reported on, 1,121 determinations were made on standard samples. A comprehensive index list of these samples was also prepared.

56. **Visits by technical bodies.**—The Government Test House was visited by the Institution of Engineers (India) in December 1927 at the time of the annual general meeting of the Institution held in Calcutta. Some 50 members took part in the visit.

Members of the Roads Development Committee, which held meetings in Calcutta in the same month, also visited the Test House and were shown the apparatus used for testing road materials.

57. **Investigations.**—Investigations were carried out on the following among other subjects :—

1. The corrosive action of turpentine, Indian and imported, on steel under different conditions.
2. The action of sodium hypochlorite on different metals, coated and uncoated.
3. The inflammability of cellulose-ester enamels.
4. The oil absorption of white lead under different conditions.
5. Testing of water-proofing materials.

58. **Apparatus.**—The following additional apparatus was acquired during the year :—

1. Potentiometer complete with accessories.
2. Kelvin double bridge.
3. Michie sludge test apparatus for transformer oils.
4. Three balances.
5. Apparatus for determining the loss on heating of bituminous materials.
6. Apparatus for the determination of the ductility of bituminous materials.

A complete list of the apparatus installed at the Test House is given in Appendix XV, and the details of articles of various descriptions tested are given in Appendix XVII.

CHAPTER VI.

Encouragement of Indian Industries and local purchases.

59. **Registration of firms at Headquarters.**—The potentialities of Indian sources of supply continued to be explored, and this investigation resulted in the addition of 326 firms to the Department's list of approved contractors and to the lists of firms maintained under the Rules for the supply of articles for the public service. The applications from 76 firms for registration were rejected on the ground of their unsuitability for enrolment; and on a review of the lists in the light of the experience f the past years it was decided to remove therefrom the names of 106 firms, as these were no longer considered to be of any practical use to the Department.

The following table indicates the total number of firms registered up to the end of the year distributed amongst the various provinces and classified according to the different descriptions of stores dealt with by them :—

Descriptions of stores.	Bengal.	Bombay Presidency.		Madras.	Punjab.	United Provinces.	Delhi.	Burma.	Bihar and Orissa.	Central Provinces.	Indian States.	North-West Frontier Province.	Total.
		Bombay.	Karachi.										
Railway materials	59	41	4	8	9	3	7	6	5	..	..	..	142
Hardware	86	55	15	12	15	23	15	9	3	..	7	..	240
Implements and tools	51	42	11	14	13	4	11	10	3	1	3	..	163
Metals	90	56	16	14	15	9	12	12	4	1	3	..	232
Mechanical equipment	147	129	12	32	23	12	18	29	4	..	6	..	412
Electrical ,,	92	63	12	21	14	13	15	11	3	..	3	..	247
Oils	42	35	7	12	8	5	5	9	..	..	4	..	127
Paints, colours, enamels and varnishes.	51	44	11	13	8	1	4	7	1	..	4	..	144
Chemicals (excluding medicines and drugs).	38	16	5	3	3	3	3	3	..	..	1	..	75
Textiles—													
(*a*) Cotton materials	75	70	3	6	30	20	12	5	..	1	6	..	228
(*b*) Woollen materials	26	21	2	5	10	13	2	2	1	..	5	1	88
(*c*) Jute, flax and hemp materials.	58	25	4	1	11	5	..	3	1	1	..	..	109
Silk Goods	..	..	..	..	..	1	..	..	..	..	..	..	1
Leather Goods	17	9	..	2	6	15	1	3	..	..	1	..	54
Structural engineering	39	14	3	4	2	2	2	6	2	..	..	..	74
Miscellaneous stores	177	110	24	26	51	40	30	21	3	8	9	1	500
Medical, surgical and scientific stores and equipment (excluding medicines, chemicals and drugs).	11	3	..	1	1	2	..	..	..	..	..	..	18
Wireless stores	1	1	..	..	..	..	..	1	..	..	..	..	3
Mathematical, drawing and surveying instruments and equipment.	9	9	..	..	..	..	1	1	..	..	..	..	20
TOTAL	1,069	743	129	174	219	171	138	138	30	12	52	2	2,877
Deduct overlapping figures for firms appearing for more than one item.	613	402	81	116	87	51	75	69	21	3	21	..	1,539
NET TOTAL	456	341	48	58	132	120	63	69	9	9	31	2	1,338

60. **Advice to manufacturers.**—The Department has continued its efforts to assist manufacturers in improving the quality of their products and bringing them up to the standards required by Government Departments.

The progress made in this direction since the formation of the Indian Stores Department as a result of its activities has been most gratifying, particularly in respect of textiles.

A few of the more important items which were imported from abroad in the past because they were not obtainable in India of the standards required and which are now purchased of Indian manufacture by the Indian Stores Department, are :—

Articles.	Approximate value of annual purchases.
	Rs.
1. Drill, khaki	10,60,000
2. Putties, khaki, woollen	4,31,000
3. Socks, woollen	5,30,000
4. Felt for saddle panels	2,61,000
5. Serge, miscellaneous, white lining	96,000
6. Khaki jean for bandoliers	65,000

In addition the manufacture of the following items in India is being carefully nursed with a view to their total elimination from home indents at the earliest possible date :—

Engineering and miscellaneous.

1. Battery jars.
2. Glassware, miscellaneous.
3. Locomotive cylinders.
4. Paint, white lead.
5. Stoneware.

Textiles.

6. Bunting cloth.
7. Duck, cotton.
8. Leather and oil cloth.
9. Leather belting.
10. Pugree cloth.
11. Greatcoat cloth.
12. Serge drab mixture.

In order to assist Indian manufacturers, trial orders for the last two items have already been placed with Indian mills at prices somewhat higher than those at which these materials can be obtained from abroad. It is anticipated that Indian manufacturers will be able, in due course of time, to produce these materials at rates which will compare favourably with those quoted

by their foreign competitors and that it will be posssible to obtain from Indian sources the full quantity of these materials required for the Army in India.

61. **Scrutiny of home indents.**—The number of indents on the India Store Department, London, which were examined during the year, amounted to 1,630 of an estimated value of Rs. 7,65,40,013. Items to the aggregate value of Rs. 15,66,392 were challenged, and as a result purchases to the value of Rs. 1,86,955 were diverted to the Indian market, and assurances were received from indentors that items, the present requirements in respect of which aggregate Rs. 5,32,325 in value at current rates, would, if required in future, be purchased in India. During 1926-27 the value of the items challenged amounted to Rs. 76,57,000, and that of the purchases diverted to India to Rs. 6,44,000. The reduction in the corresponding figures of 1927-28 is, it is believed, attributable to greater attention being paid to the resources of India by indenting Departments.

CHAPTER VII.

Finance.

62. **Statistics of Revenue and Expenditure.**—Sub-joined is a comparative statement of the revenue and expenditure of the Department during each of the five years ending with the year 1927-28.

Revenue.

	1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
	Rs.	Rs.	Rs.	Rs.	Rs.
Departmental charges on purchase of stores, I.S.D. Orders.	1,37,677	2,91,727	2,51,400	3,11,356	3,48,752
Do. Inspection do.			1,53,766	1,87,802	2,43,004
Other orders.					
Do. Calcutta Circle of Inspection.	1,30,434	1,09,516	2,10,095	2,97,207	3,34,061
Do. Bombay do.	..	314	1,569	24,100	51,948
Do. Cawnpore do.	..	104	880	8,616	971
Do. Karachi do.	..	313	1,042	1,265	6,802
Do. Metallurgical Inspectorate.	2,01,979	2,60,971	3,29,793	3,79,080	4,23,243
Do. Government Test House, Calcutta.	89,825	80,909	1,05,772	1,15,476	1,13,237
Miscellaneous receipts	9,735	19,612	16,288	34,465	43,655
Deduct refunds	..	..	..	—450	—1,764
Total	5,69,650	7,63,466	10,70,605	13,58,917	15,63,909

Expenditure (by units of Appropriation).

	1923-24. Rs.	1924-25. Rs.	1925-26. Rs.	1926-27. Rs.	1927-28. Rs.
Pay of officers . . .	2,88,979	4,43,003	5,52,816	5,91,533	6,55,362
Pay of establishment . . .	2,26,583	3,04,493	4,21,579	5,23,081	5,97,450
Allowances, honoraria, etc. . .	62,526	1,10,283	1,45,497	1,69,106	1,77,027
Supplies and services . . .	2,22,279	68,544	63,459	69,864	60,718
Contingencies	71,416	97,359	1,02,350	1,29,757	1,17,388
Works	50,930	15,790	2,00,000	91,854	9,558
Grants-in-aid, contributions, etc. .	..	..	..	2,136	..
Total expenditure in India .	9,22,713	10,39,472	14,85,701	15,77,331	16,17,503
Total revenue .	5,69,650	7,63,466	10,70,605	13,58,917	15,63,909
Deficit .	3,53,063	2,76,006	4,15,096	2,18,414	53,594

N.B.—The figures for the year 1927-28 are not the final figures of the year as the accounts have not yet been closed. The previous year's figures have been corrected to represent the final revenue and expenditure of the year.

63. **Financial position.**—On the figures of revenue and expenditure available at the time of the preparation of the report for 1926-27 it was computed, and so stated in paragraph 71 of the report for that year, that after excluding the capital expenditure incurred on the construction of residential buildings at Jamshedpur, there was at the close of the year a net deficit on revenue account of Rs. 29,500. Owing to adjustments which were subsequently made in the accounts, the effect of which was to reduce the revenue figure for 1926-27 by approximately Rs. 1 lakh, which represented the share of the receipts creditable to the Audit Department, and at the same time to increase the expenditure figure by about Rs. 13,000, it has become necessary to alter the amount of the deficit. According to the final figures for the year 1926-27 the net deficit on revenue account during that year amounted to Rs. 1,42,500 after allowing for the capital expenditure to which reference has been made. Thus, the financial position in 1926-27 was not actually so satisfactory as indicated by the report. Nevertheless, as will be observed from an examination of the accounts, the position is not one which gives cause for any real dissatisfaction. The revenue of the Department has increased at a higher rate than the expenditure, with the result that there has been a progressive decline in the annual deficits. Exclusive of the capital expenditure on the buildings at the Metallurgical Inspectorate, the net deficit in 1925-26 amounted to Rs. 2,15,000. This was reduced in 1926-27 to Rs. 1,42,500. The complete figures of the revenue and expenditure for 1927-28 are not yet available, and it is too early to judge how the final results will compare with those of the year 1926-27.

As explained in the report for the previous year, the expenditure figures included in these accounts do not comprise a number of indirect charges which are correctly debitable to the accounts of the Department if it is treated as a *quasi*-commercial Department of the State. The inclusion of these charges will materially affect the situation, and the remark made in the last year's report, therefore, still holds good, namely, that some time must elapse and much greater use must be made of the services of the Department before it can hope to be self-supporting in the commercial sense.

SIMLA,

Dated the 8th June 1928.

J. S. PITKEATHLY,

Chief Controller of Stores,

Indian Stores Department.

APPENDIX I.

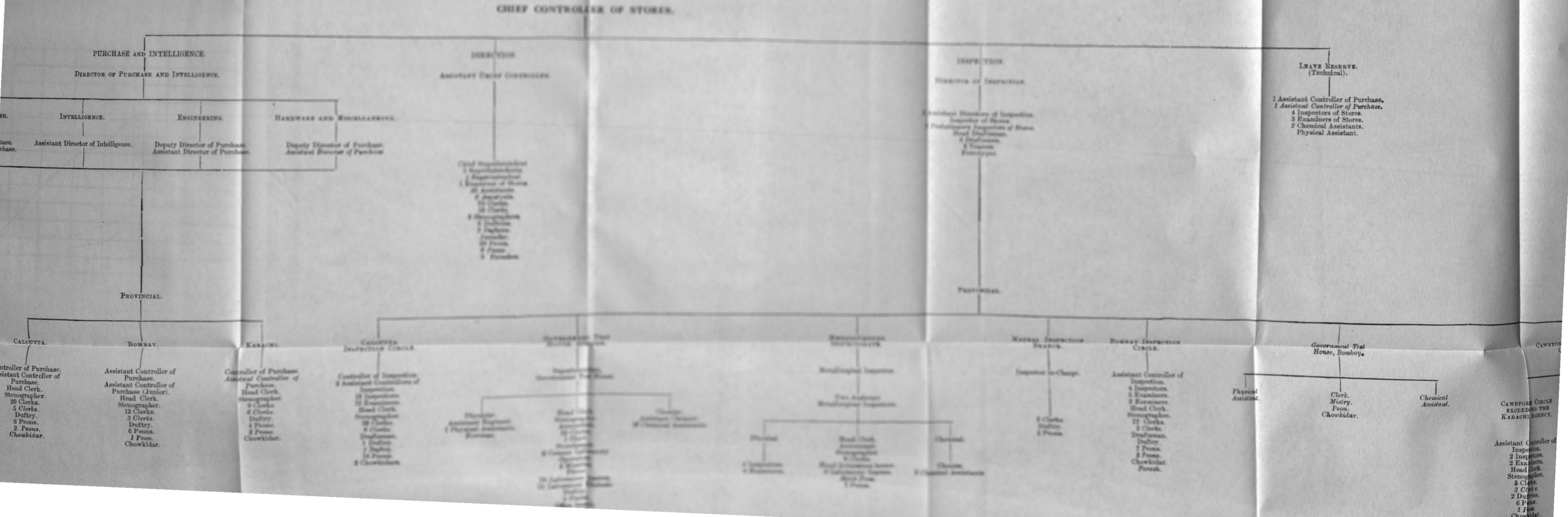
ORGANIZATION

OF

The Indian Stores Department as it stood on the 31st March 1928.

(Vide paragraph 5 of the Report.)

NOTE.—The appointments added during the year are shown in italics.

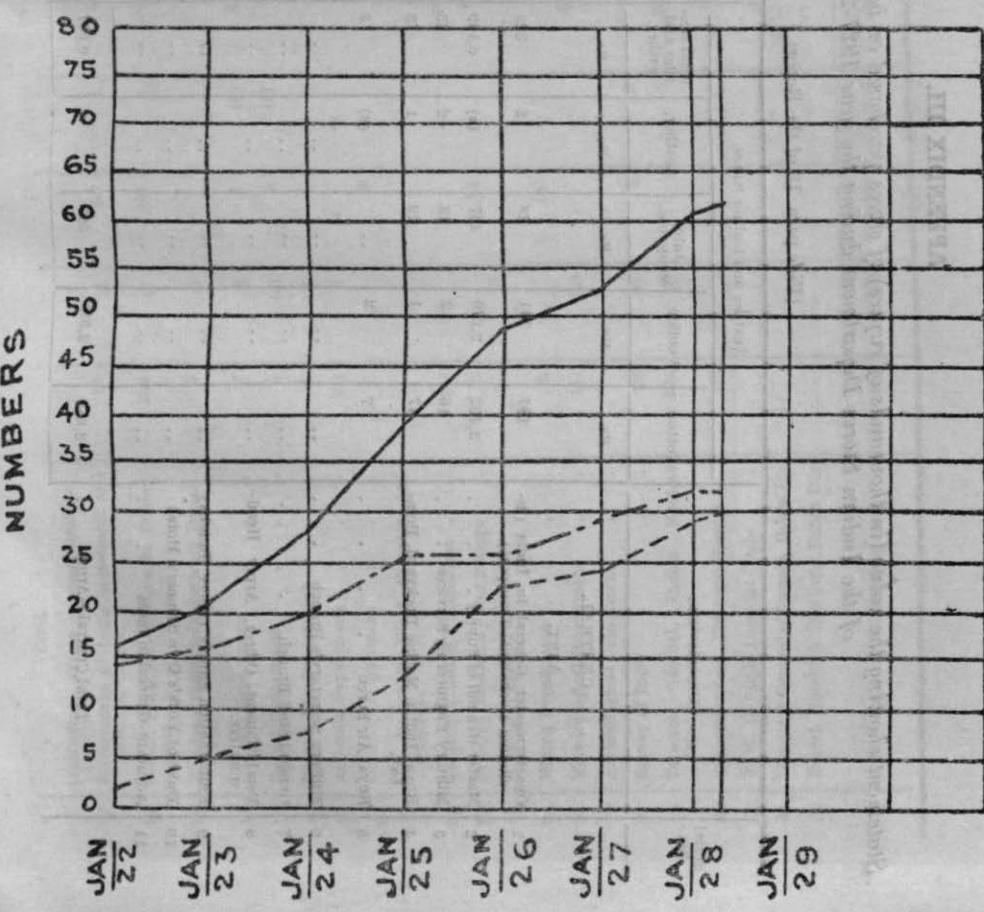


APPENDIX II

INDIAN STORES DEPARTMENT GAZETTED STAFF UP TO 31-3-28

(Vide *paragraph 10 of the report*)

TOTAL ————————
INDIANS — — — — —
NON INDIANS —·—·—·—



APPENDIX III.

Statement showing the value (in thousands of rupees) of stores purchased on behalf of various authorities, utilising the services of the Indian Stores Department during the year 1927-28, and four preceding years.

(*Vide* para. 13 of the Report.)

Serial No.	Organization.	Textiles and leather stores.					Engineering and Miscellaneous Stores.	Total for the year				
		Cotton.	Woollen.	Jute, hemp, etc.	Leather.	Total textiles and leather.		1927-28.	1926-27.	1925-26.	1924-25.	1923-24.
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
	CENTRAL.											
	ARMY.											
1	Quartermaster General in India (including Mechanical Transport).	187	111	28	2	328	1,970	2,298	9,242	6,152	6,187	10,223
2	Master General of Supply	3,402	2,270	467	(*a*)	6,139	447	6,586	3,161	1,716	2,661	341
3	Military Engineering Services	16	2	13	2	33	5,580	5,613	4,808	3,856	3,231	1,033
4	Royal Indian Marine Dockyard, Bombay.	47	1	29	1	78	461	539	119	27	27	..
5	Royal Air Force	7	2	..	(*a*)	9	548	557	131	..	..	..
6	Military Secretary's Branch	..	..	..	..	..	..	..	..	1	..	
7	General Staff Branch	..	..	..	..	..	18	18	(*a*)	(*a*)	..	..
8	Establishment Officer, Army Headquarters.	..	..	..	..	..	(*a*)	(*a*)	(*a*)	(*a*)	..	..
9	Embarkation Supply Officer, Bombay	..	..	..	..	..	..	..	1	..	..	..
10	Duke of York's Own Skinner's Horse	..	..	..	..	..	..	..	..	16	..	..
11	Adjutant-General in India	..	..	..	..	..	(*a*)	(*a*)	..	..	..	..
	Total Central—Army	3,659	2,386	537	5	6,587	9,024	15,611	17,462	11,768	12,106	11,597

	CIVIL.											
	(Including Minor Administrations.)											
12	Government of India Secretariat and Attached Offices.	12	18	(a)	1	31	3	34	48	59	24	12
13	Indian Posts and Telegraphs Department.	206	37	306	1	550	534	1,084	819	957	874	353
14	Northern India Salt Revenue Department.	5	4	..	..	9	74	83	283	434	1,109	44
15	Customs Department . . .	7	3	1	(a)	11	33	44	21	10	25	3
16	Opium Department	1	(a)	4	(a)	5	39	44	18	60	49	..
17	Income Tax Department . . .	1	1	..	..	2	(a)	2	3	1	1	..
18	Accounts Department . . .	(a)	1	..	..	1	(a)	1	3	1	(a)	(a)
19	Currency Department . . .	..	..	5	..	5	..	5	3	(a)	..	..
20	His Majesty's Mints, Calcutta and Bombay.	..	..	..	..	..	48	48	4	3	..	..
21	Security Printing Department . .	(a)	..	..	..	(a)	73	73	64	7	(a)	..
22	Printing, Stationery and Stamps .	5	..	18	..	23	17	40	77	61	184	8
23	Geological Survey	..	..	..	..	..	..	..	..	(a)	(a)	..
24	Mining Department	2	..	(a)	..	2	46	48	35	..	(a)	..
25	Meteorological Department . .	(a)	(a)	..	..	(a)	2	2	2	(a)	..	..
26	Archæological Department . .	..	..	..	..	..	18	18	10	1	..	..
27	Survey of India	28	41	3	2	74	29	103	65	8	3	33
28	Director General, Indian Medical Service.	204	16	..	..	220	..	220	226	292	89	..
29	Superintendent, Viceregal Estates .	(a)	..	..	..	(a)	..	(a)	1	..	6	..
30	P. W. D. Simla Imperial Circle . .	..	..	..	..	..	24	24	17	17	27	..
31	Inspector General of Forests, Dehra Dun	..	..	..	..	..	1	1	11	..	..	..
32	Forest Research Institute, Dehra Dun	..	..	..	..	..	..	..	13	19	4	(a)
	Carried over .	471	121	337	4	933	941	1,874	1,723	1,930	2,395	453

Serial No.	Organization.	Textiles and leather stores.					Engineering and Miscellaneous Stores.	Total for the year				
		Cotton.	Woollen.	Jute, hemp, etc.	Leather.	Total textiles and leather.		1927-28.	1926-27.	1925-26.	1924-25.	1923-24.
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
	Brought forward .	471	121	337	4	933	941	1,874	1,723	1,930	2,395	458
	CENTRAL—*contd.*											
	CIVIL—*contd.*											
33	X-Ray Institute, Dehra Dun . .	..	..	..	..	..	..	..	..	..	(*a*)	..
34	Agricultural Research Institute, Pusa	..	..	..	..	..	..	..	6	17	(*a*)	..
35	Chief Inspector of Explosives, Calcutta	..	..	..	..	..	1	1	..	..	..	..
36	Veterinary Research Institute, Muktesar.	1	1	1	..	3	11	14	6	5	..	..
37	Bacteriologist, Muktesar . . .	..	..	..	..	..	..	..	..	..	5	..
38	Dairy Expert, Bangalore . . .	..	..	..	..	..	..	..	2	..	..	..
39	Physiological Chemist, Bangalore .	..	..	..	..	..	(*a*)	(*a*)	..	..	..	..
40	Royal Botanical Gardens . . .	..	..	..	..	..	..	..	3	4	(*a*)	..
41	Indian Central Cotton Committee .	..	..	..	..	..	..	..	..	18	..	..
42	N.-W. F. P. Revenue Commissioner .	..	..	..	..	..	(*a*)	(*a*)	..	..	..	..
43	N.-W. F. P. Agricultural Department	..	..	(*a*)	..	(*a*)	..	(*a*)	..	..	..	..
44	N.-W. F. P. Jail Department . .	..	..	..	..	..	..	..	..	..	..	(*a*)
45	N.-W. F. P. Police Department .	28	23	..	..	51	11	62	61	109	52	61
46	N.-W. F. P. Public Works Department	..	..	..	..	..	2	2	(*a*)	..	..	..
47	Political Agent, N.-W. F. P., Gilgit	..	..	..	..	..	(*a*)	(*a*)	..	..	..	..
48	Chief Commissioner, Delhi . .	..	..	..	..	..	..	..	..	1	..	..
49	Delhi Public Works Department .	26	40	2	..	68	845	913	728	383	565	869
50	Delhi Police	4	..	..	..	4	..	4	9	..	..	..

51	Imperial Works Division, Dehra Dun	..	..	..	..	..	16	16	114	11	..	..
52	Chief Commissioner, Coorg . .	..	..	..	..	..	4	4	3	3	20	..
53	Forest Department, Coorg . .	(a)	..	..	..	(a)	..	(a)	..	..	..	..
54	Public Works Department, Coorg .	..	..	..	..	..	(a)	(a)	..	..	..	..
55	Andamans Commission . . .	13	2	21	1	37	197	234	241	124	16	..
56	Agent to the Governor-General, Central India.	..	..	(a)	..	(a)	2	2	5	1	..	..
57	Central India Agency, P. W. D. .	(a)	..	..	..	(a)	21	21	1	..	..	..
58	Rajputana Agency	(a)	..	..	..	(a)	11	11	8	9	21	..
59	Baluchistan Agency	..	..	..	..	..	3	3	9	2	(a)	..
60	Baluchistan, P. W. D. . . .	..	..	..	..	..	17	17	(a)	..	..	..
61	Political Agent, Zhob, Fort Sandeman	..	..	..	..	..	..	..	(a)	..	..	..
62	His Britannic Majesty's Consul for Seistan, etc.	..	..	..	..	..	..	..	..	(a)	..	..
63	Persian Gulf Agency . .	..	..	..	..	..	(a)	(a)	..	..	15	..
64	Political Agent, Central Provinces Feudatory States.	..	..	..	..	..	..	..	..	(a)	(a)	..
65	Political Agent and Sub-Treasury Officer, Eastern Kathiawar Agency.	..	..	..	..	..	(a)	(a)	..	..	..	..
66	Political Officer in Sikkim . .	..	..	..	..	..	..	..	5	..	..	..
67	British Envoy at the Court of Nepal . .	..	..	..	..	..	(a)	(a)	(a)	(a)	..	..
68	Resident in Mysore	..	..	..	..	..	(a)	(a)	..	..	..	..
69	Captain Superintendent, I. M. M. T. S. "Dufferin," Bombay.	1	(a)	(a)	(a)	1	2	3	..	..	..	..
	Adjustments on account of fractions of a thousand.	..	1	—1	..	..	..	..	—2	..	..	..
	Total Central—Civil	544	188	360	5	1,097	2,084	3,181	2,922	2,617	3,089	1,383

Serial No.	Organization.	Textiles and leather stores. Cotton.	Woollen.	Jute, hemp, etc.	Leather.	Total textiles and leather.	Engineering and Miscellaneous Stores.	Total for the year 1927-28.	1926-27.	1925-26.	1924-25.	1923-24.
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
	RAILWAYS.											
	STATE-WORKED RAILWAYS.											
70	North Western Railway . . .	688	191	31	..	910	2,326	3,236	2,879	1,577	1,367	892
71	Eastern Bengal Railway . . .	..	..	..	..	..	404	404	36	13	69	..
72	East Indian Railway (including O. and R. Railway).	1,191	377	20	..	1,588	556	2,144	2,238	1,617	2,974	45
73	Great Indian Peninsula Railway .	29	..	233	..	262	919	1,181	1,865	121	176	..
74	Aden Railway	(*a*)	..	..	..	(*a*)	(*a*)	(*a*)	5	..	..	..
75	Central Indian Coalfields Railway .	..	..	..	..	..	..	..	..	..	..	1
	Adjustment on account of fractions of a thousand.	1	—1	..	..	..	..	..	..	..	..	..
	Total State-worked Railways .	1,909	567	284	..	2,760	4,205	6,965	7,023	3,328	4,586	938
	COMPANY-WORKED RAILWAYS.											
76	Assam-Bengal Railway . . .	26	(*a*)	21	..	47	163	210	205	77	47	..
77	Bombay, Baroda and Central India Railway.	..	..	..	..	..	(*b*)—3	(*b*)—3	35	3	..	..
78	South Indian Railway . . .	..	..	..	..	..	104	104	74	1	..	..
79	Bengal-Nagpur Railway . . .	..	..	..	..	..	14	14	45	730	..	..
80	Madras and Southern Mahratta Railway.	..	..	..	..	..	120	120	50	..	..	..
81	Bengal and North-Western Railway .	..	..	..	..	..	..	..	33	..	..	..
82	Sind Railway	..	..	..	..	..	..	..	(*a*)	..	..	..

83	H. E. H. the Nizam's Guaranted State Railways.	27	10	..	..	37	17	54	33	1	10	..
84	Burma Railways	11	..	..	..	11	7	18	39	67	..	..
85	Barsi Light Railway . . .	..	..	..	..	..	13	13	..	..	..	
	Total Company-worked Railways .	64	10	21	..	95	435	530	514	879	57	..
	INDIAN STATE-WORKED RAILWAYS.											
86	Mysore Railway	..	..	..	..	..	115	115	5	..	..	..
87	Jodhpur Railway	..	..	..	..	..	..	..	(a)	..	..	..
	Total Indian State-worked Railways	..	..	..	..	..	115	115	5	..	..	..
	TOTAL RAILWAYS .	1,973	577	305	..	2,855	4,755	7,610	7,542	4,207	4,643	938
	PROVINCIAL.											
	MADRAS.											
88	Public Works Department . .	(a)	(a)	4	(a)	4	(c) 39	43	940	9	(a)	..
89	Agricultural Department . . .	..	..	(a)	..	(a)	5	5	(a)	..	..	..
90	Forest Department	1	(a)	..	1	2	1	3	2	..	..	..
91	Police Department	6	1	..	1	8	(a)	8	1	(a)	..	..
92	Jail Department . . .	..	14	..	..	14	..	14	(a)	1	..	..
93	Printing and Stationery Department .	2	..	..	..	2	(a)	2	2	2	..	..
94	Education Department . . .	..	..	..	..	..	(a)	(a)	(a)	(a)	..	..
95	Medical Department . . .	..	..	..	..	..	(a)	(a)	1	(a)	..	..
96	Revenue Department . . .	..	..	..	..	..	..	..	(a)	..	..	..
	Total Madras .	9	15	4	2	30	45	75	946	12	(a)	..

APPENDIX III—*contd.*

Serial No.	Organization.	Textiles and leather stores.					Engineering and Miscellaneous Stores.	Total for the year				
		Cotton.	Woollen.	Jute, hemp, etc.	Leather.	Total textiles and leather.		1927-28.	1926-27.	1925-26.	1924-25.	1923-24.
	PROVINCIAL—*contd.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
	BOMBAY.											
97	Public Works Department (Lloyd Barrage Project).	15	1	14	2	32	4,200	4,232	3,311	3,777	2,630	658
98	Public Works Department	1	..	(*a*)	..	1	270	271	781	165	111	..
99	Agricultural Department	..	..	..	..	..	..	..	3	13	..	..
100	Forest Department	(*a*)	..	..	..	(*a*)	20	20	33	32	..	..
101	Police Department	14	14	..	..	28	(*a*)	28	45	61	22	21
102	Jail Department	96	(*a*)	(*a*)	..	96	1	97	113	166	107	..
103	Printing and Stationery Department	9	..	(*a*)	..	9	4	13	10	19	9	4
104	Development Department	..	..	..	..	..	3	3	..	(*a*)	..	77
105	Medical Department	..	..	..	..	..	3	3	1	(*a*)	2	..
106	Sanitary Department	..	..	..	..	..	(*a*)	(*a*)	6	16	..	..
107	Revenue Department	1	..	..	..	1	(*a*)	1	..	1	..	..
108	Salt and Excise Department	2	(*a*)	..	1	3	..	3	3	..	..	..
109	Judicial Department	..	..	..	..	..	..	..	..	(*a*)	..	..
110	Political Department	..	..	..	..	..	..	..	..	1	..	..
	Adjustment on account of fractions of a thousand.	−1	1	1	..	1	..	1	..	..	..	..
	Total Bombay	137	16	15	3	171	4,501	4,672	4,306	4,251	2,881	76[illegible]
	BENGAL.											
111	Public Works Department	(*a*)	..	(*a*)	..	(*a*)	218	218	23	1	..	(*a*)
112	Forest Department	..	..	..	..	..	1	1	11	1	(*a*)	..
113	Police Department	2	..	1	..	3	12	15	1	1	..	(*a*)

114	Jail Department	(a)	..	..	..	(a)	32	32	52	16	(a)	..
115	Education Department	..	..	..	..	..	(a)	(a)	1	6	2	..
116	Sanitary Department	..	..	..	..	..	(a)	(a)	1	..	..	..
117	Revenue Department	..	..	..	..	..	(a)	(a)	(a)	..	(a)	..
118	Excise Department	..	..	..	..	..	..	..	(a)	..	..	..
119	Judicial Department	..	..	..	..	..	(a)	(a)	(a)	(a)	..	..
120	Marine Department	..	..	..	..	..	6	6	..	..	..	..
121	Superintendent, Governor's Estates	..	..	..	..	..	4	4	2	1	..	..
122	Military Secretary to H. E. the Governor.	..	..	..	..	..	..	..	..	(a)	..	..
123	Cinchona Cultivation	..	..	..	..	..	3	3	1	..	..	..
	Total Bengal	2	..	1	..	3	276	279	92	26	2	(a)
	UNITED PROVINCES.											
124	Public Works Department	..	..	(a)	..	(a)	9	9	483	60	..	..
125	Forest Department	..	..	..	..	..	2	2	(a)	..	..	..
126	Police Department	..	..	..	..	..	..	..	..	..	(a)	..
127	Printing Department	..	..	..	..	..	..	..	..	(a)	..	..
128	Medical Department	..	..	..	..	..	..	..	..	(a)	..	..
129	Revenue Department	..	..	..	..	..	..	..	..	(a)	..	..
130	Judicial Department	..	..	..	..	..	(a)	(a)	..	..	..	(a)
	Total United Provinces	..	..	(a)	..	(a)	11	11	483	60	(a)	(a)
	PUNJAB.											
131	Public Works Department (including Sutlej Valley Project).	9	(a)	15	2	26	3,434	3,460	2,795	1,728	1,956	1,371
132	Public Works Department (Hydro-Electric Branch).	..	..	..	..	..	678	678	907	58	..	..
	Carried over	9	..	15	2	26	4,112	4,138	3,702	1,786	1,956	1,371

APPENDIX III—*contd.*

Serial No.	Organization.	Textiles and leather stores.					Engineering and Miscellaneous Stores.	Total for the year				
		Cotton.	Woollen.	Jute, hemp, etc.	Leather.	Total textiles and leather.		1927-28.	1926-27.	1925-26.	1924-25.	1923-24.
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
	PROVINCIAL—*contd.*											
	PUNJAB—*contd.*											
	Brought forward	9	..	15	2	26	4,112	4,138	3,702	1,786	1,956	1,371
133	Agricultural Department	6	..	(*a*)	..	6	12	18	88	21	33	..
134	Veterinary Department	..	..	..	..	..	(*a*)	(*a*)	..	..	..	..
135	Forest Department	..	..	..	..	..	(*a*)	(*a*)	21	..	..	..
136	Police Department	35	..	(*a*)	..	35	2	37	39	47	199	..
137	Jail Department	61	167	2	5	235	19	254	354	212	24	..
138	Printing Department	..	..	..	..	..	..	..	(*a*)	..	14	..
139	Education Department	(*a*)	..	1	..	1	7	8	(*a*)	8	(*a*)	..
140	Industries Department	..	..	..	..	..	161	161	127	20	14	49
141	Development Department	..	..	..	..	..	..	..	1	..	..	..
142	Sanitary Department	..	..	..	..	..	1	1	(*a*)	(*a*)	22	..
143	Finance Department	..	..	..	..	..	..	..	..	22	..	..
144	Revenue Department	..	..	..	..	..	1	1	(*a*)	(*a*)	..	..
145	Judicial Department	..	..	..	..	..	(*a*)	(*a*)	1	(*a*)	..	..
146	Registration Department	..	..	..	..	..	..	..	..	(*a*)	..	..
	Unclassified items	7	12	..	..	19	..	19	18	..	..	..
	Adjustment on account of fractions of a thousand.	..	..	..	..	..	—1	—1	..	..	..	..
	Total Punjab	118	179	18	7	322	4,314	4,636	4,351	2,111	2,262	1,420

	BIHAR AND ORISSA.											
147	Public Works Department	..	..	..	..	..	43	43	37	2	..	(a)
148	Agricultural Department	..	..	..	..	..	(a)	(a)	(a)	..	..	..
149	Police Department	..	..	(a)	..	(a)	(a)	(a)	(a)	3	..	..
150	Jail Department	..	..	5	..	5	(a)	5	9	76	421	12
151	Printing Department	..	..	1	..	1	(a)	1	2	3	6	2
152	Industries Department	..	..	..	..	..	(a)	(a)	10	..	..	..
153	Medical Department	..	..	..	..	..	..	..	..	1	..	..
154	Veterinary Department	..	..	..	..	..	..	..	(a)	..	..	..
155	Education Department	..	..	..	..	..	3	3	..	..	..	..
	Adjustment on account of fractions of a thousand.	..	..	..	..	..	1	1	2	..	..	..
	Total Bihar and Orissa	..	..	6	..	6	47	53	60	85	427	14
	BURMA.											
156	Public Works Department	..	..	..	..	..	2	2	11	..	9	..
157	Police Department	376	291	14	..	681	..	681	21	361	195	..
158	Jail Department	..	..	3	..	3	..	3	4	5	4	3
159	Printing Department	2	..	..	5	7	..	7	6	8	2	..
160	Marine Department	..	..	..	..	..	(a)	(a)	..	..	..	..
	Total Burma	378	291	17	5	691	2	693	42	374	210	3

APPENDIX III—*contd.*

Serial No.	Organization.	Textiles and leather stores. Cotton.	Woollen.	Jute, hemp, etc.	Leather.	Total textiles and leather.	Engineering and Miscellaneous Stores.	Total for the year 1927-28.	1926-27.	1925-26.	1924-25.	1923-24.
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
	PROVINCIAL—*concld.*											
	CENTRAL PROVINCES.											
161	Public Works Department	..	..	..	..	..	101	101	732	199	(*a*)	..
162	Forest Department	..	..	..	..	..	1	1	(*a*)	(*a*)	..	..
163	Jail Department	..	..	1	..	1	7	8	4	(*a*)	2	..
164	Industries Department	..	..	..	..	..	6	6	4	..	..	..
165	Medical Department	..	..	1	..	1	(*a*)	1	(*a*)	(*a*)	(*a*)	..
166	Sanitary Department	..	..	..	..	..	..	..	(*a*)	..	..	..
167	Agricultural Department	..	..	..	..	..	(*a*)	(*a*)	..	..	..	..
168	Revenue Department	..	..	..	..	..	2	2	1	1	..	..
169	Excise Department	..	..	..	..	..	..	..	..	(*a*)	..	..
170	Judicial Department	..	..	..	..	..	(*a*)	(*a*)	(*a*)	(*a*)	..	..
171	Printing Department	..	..	..	..	..	(*a*)	(*a*)	..	..	..	..
172	Police Department	..	..	..	..	..	1	1	..	..	..	..
173	Central Provinces Secretariat	..	..	..	..	..	(*a*)	(*a*)	..	..	..	..
	Adjustment on account of fractions of a thousand.	..	..	..	..	..	1	1	2	..	..	..
	Total Central Provinces	..	..	2	..	2	119	121	743	200	2	..

	ASSAM.											
174	Public Works Department	(a)	..	2	..	2	39	41	8	6	..	..
175	Forest Department	..	..	1	..	1	(a)	1	1	(a)	(a)	..
176	Police Department	37	36	4	..	77	2	79	70	81	..	..
177	Jail Department	10	18	..	..	28	(a)	28	24	2	..	..
178	Printing Department	..	..	..	..	..	..	..	6	4	..	..
179	Education Department	..	..	(a)	..	(a)	(a)	(a)	..	..	(a)	..
180	Medical Department	..	..	..	..	..	(a)	(a)	(a)	..	..	..
181	Revenue Department	..	..	..	..	..	1	1	(a)	(a)	..	..
182	Political Department	..	..	..	..	..	..	..	1	1	..	..
	Adjustment on account of fractions of a thousand.	..	..	..	..	..	1	1	..	..	..	..
	Total Assam	47	54	7	..	108	43	151	110	94	(a)	..
	Adjustment on account of fractions of a thousand.	..	—1	..	—1	—2	1	—1	..	..	..	..
	Total Provincial	691	554	70	16	1,331	9,359	10,690	11,133	7,213	5,784	2,197
	INDIAN STATES.											
183	Jammu and Kashmir	7	..	..	..	7	..	7	16	21	20	..
184	Jaipur	..	..	..	..	..	42	42	74	726	55	..
185	Mysore	..	..	..	..	..	13	13	4	18	..	..
186	Indore	..	..	..	..	..	..	..	..	3	..	..
187	Rajkot	..	..	..	..	..	..	..	..	2	..	..
188	Balapur	..	..	..	..	..	..	..	..	1	..	..
189	Bahawalpur	..	..	..	..	..	6	6	..	..	..	..
190	Palanpur	(a)	..	..	..	(a)	..	(a)	..	..	..	..
191	H. E. H. the Nizam's Government	..	..	..	..	..	2	2	..	..	..	..
	Adjustment on account of fractions of a thousand.	..	..	..	..	..	..	..	1	..	..	..
	Total Indian States	7	..	..	..	7	63	70	95	771	75	..

APPENDIX III—*concld.*

Serial No.	Organization.	Textiles and leather stores.					Engineering and Miscellaneous Stores.	Total for the year				
		Cotton.	Woollen.	Jute, hemp, etc.	Leather.	Total textiles and leather.		1927-28.	1926-27.	1925-26.	1924-25.	1923-24.
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
	PUBLIC BODIES.											
192	City Board, Mussoorie	(*a*)	..	..	..	(*a*)	3	3	694	42	4	..
193	City Board, Dehra Dun	..	..	..	..	..	44	44	4	..	1	..
194	Municipal Committee, Bannu	..	..	..	..	..	..	..	(*a*)	25	199	..
195	Municipal Committee, Simla	1	4	..	..	5	82	87	10	5	..	..
196	District Board, Muzaffarnagar	..	..	..	..	..	..	..	(*a*)	(*a*)	..	..
197	District Board, Dera Ismail Khan	..	..	..	..	..	1	1	..	..	..	..
198	Municipal Committee, Jorhat	..	..	..	..	..	..	..	(*a*)	..	..	..
199	Municipal Committee, Delhi	..	..	..	..	..	5	5	2	..	..	..
200	Port Commissioners, Calcutta	..	..	..	..	..	..	..	19	(*a*)	..	..
201	Port Trust, Madras	..	..	..	..	..	2	2	(*a*)	..	..	..
202	North-West Frontier Province, Frontier Constabulary.	..	..	..	..	..	..	..	..	7	3	..
203	Trustee of English Church and Cemetery, Broach.	..	..	..	..	..	..	..	..	(*a*)	..	..
204	Fire Brigade, Peshawar	..	..	..	..	..	..	..	..	..	(*a*)	..
205	Red Cross	..	..	..	..	..	..	..	..	..	1	..
	Adjustment on account of fractions of a thousand.	..	..	..	..	..	..	..	—1	..	..	..
	Total Public Bodies	1	4	..	..	5	137	142	728	79	208	..

	COLONIES.											
206	South African Government	..	..	..	..	..	..	..	..	..	(a)	605
	Total Colonies	..	..	..	..	..	..	..	..	..	(a)	605
	Adjustment on account of fractions of a thousand.	..	..	..	..	..	..	..	..	13	6	4
	GRAND TOTAL	6,875	3,709	1,272	26	11,882	25,422	37,304	39,882	26,668	25,911	16,724
	ABSTRACT.											
	Total Central Army	3,659	2,386	537	5	6,587	9,024	15,611	17,462	11,768	12,106	11,597
	Total Central Civil	544	188	360	5	1,097	2,084	3,181	2,922	2,617	3,089	1,383
	Total Railways	1,973	577	305	..	2,855	4,735	7,610	7,542	4,207	4,643	938
	Total Provincial	691	554	70	16	1,331	9,359	10,690	11,133	7,213	5,784	2,197
	Total Indian States	7	..	..	..	7	63	70	95	771	75	..
	Total Public Bodies	1	4	..	..	5	137	142	728	79	208	..
	Total Colonies	..	..	..	..	..	..	..	..	..	(a)	605
	Adjustment on account of fractions of a thousand.	..	..	..	..	..	..	..	..	13	6	4
	GRAND TOTAL	6,875	3,709	1,272	26	11,882	25,422	37,304	39,882	26 668	25,911	16,724

(a) Items below Rs. 500.
(b) Due to cancellations of orders placed in 1926-27.
(c) Decrease due to cancellation of orders for cement for Cauvery Metur Project, to the value of Rs. 2,28,000.

APPENDIX IV.

Statement showing the value of the various classes of purchases (indigenous and imported separately) made during the year 1927-28 as compared with four previous years.

(*Vide* paragraphs 16 and 18 of the report.)

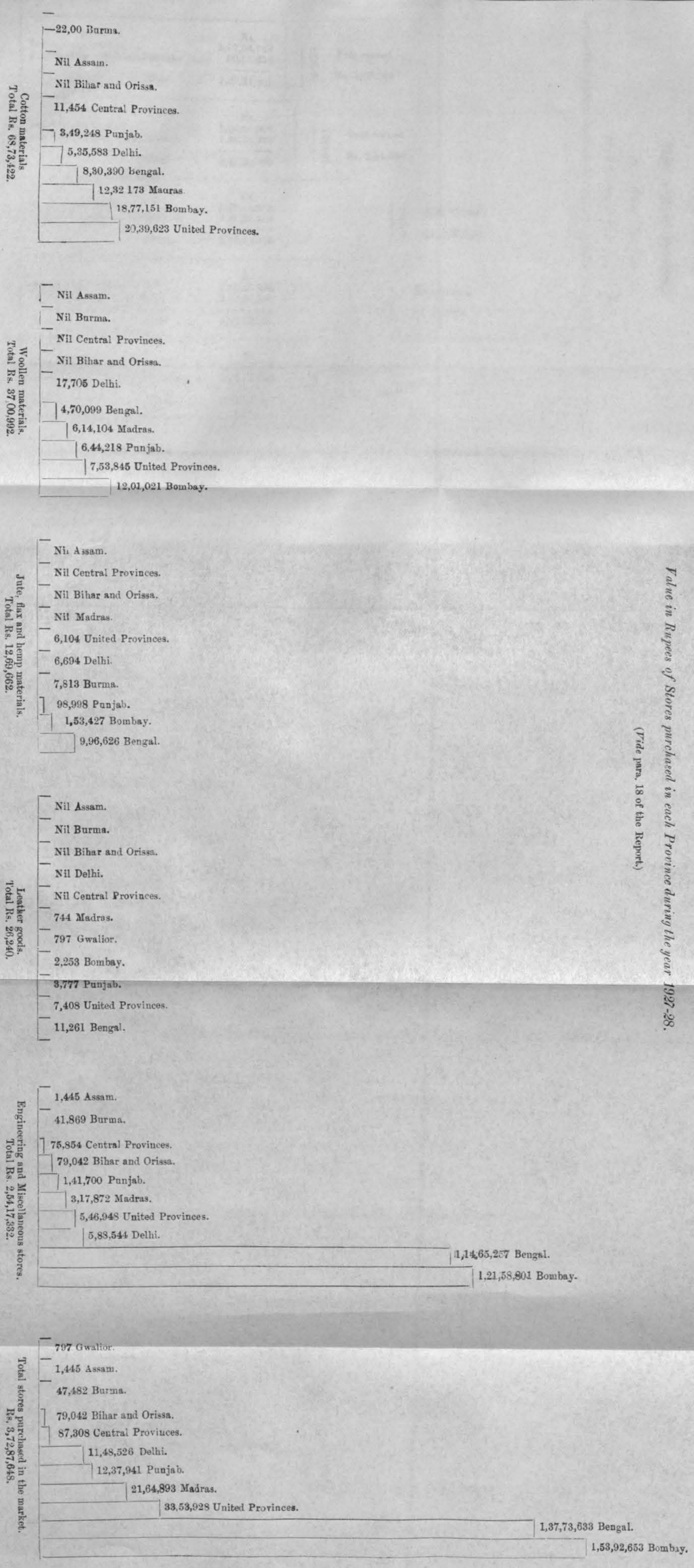
	1927-28.		1926-27.		1925-26.		1924-25.		1923-24.	
	Rs.		Rs.		Rs.		Rs.		Rs.	
I.—TEXTILES AND LEATHER.										
(*a*) Stores purchased in the Indian market—										
(i) *Cotton*—										
Indigenous . .	66,28,106	(96·4%)	85,89,868	(96·9%)	57,16,336	(97·3%)	73,08,207	(97·4%)	47,09,424	(98·6%)
Imported . .	2,45,316	(3·6%)	2,76,677	(3·1%)	1,55,264	(2·7%)	1,93,997	(2·6%)	64,684	(1·4%)
(ii) *Woollen*—										
Indigenous . .	36,81,336	(99·5%)	51,68,861	(97·5%)	39,49,537	(98·8%)	41,35,362	(98·7%)	41,38,441	(78·3%)
Imported . .	19,656	(0·5%)	1,31,379	(2·5%)	46,419	(1·2%)	54,972	(1·3%)	11,49,717	(21·7%)
(iii) *Jute, hemp, etc.*—										
Indigenous . .	11,56,483	(91·1%)	19,75,785	(94·7%)	19,11,724	(96·0%)	15,75,548	(97·1%)	14,08,901	(98·0%)
Imported . .	1,13,179	(8·9%)	1,10,831	(5·3%)	80,568	(4·0%)	46,330	(2·9%)	28,953	(2·0%)
(iv) *Leather*—										
Indigenous . .	25,063	(95·5%)	19,370	(62·7%)	20,826	(96·1%)	12,034	(96·0%)	....	
Imported . .	1,177	(4·5%)	11,509	(37·3%)	842	(3·9%)	503	(4·0%)	....	

(b) Imported stores purchased through the Director-General of Stores.	....	....	....	....	....
Total — Indigenous . .	1,14,90,988 (96·8%)	1,57,53,884 (96·7%)	1,15,98,423 (97·6%)	1,30,31,151 (97·8%)	1,02,56,766 (89·2%)
Total — Imported . .	3,79,328 (3·2%)	5,30,396 (3·3%)	2,83,093 (2·4%)	2,95,802 (2·2%)	12,43,354 (10·8%)
Total .	1,18,70,316	1,62,84,280	1,18,81,516	1,33,26,953	1,15,00,120
(c) Stores purchased from Government Departments.	10,597	2,013	....	....	2,08,625
Total textiles and leather . .	1,18,81,913	1,62,86,293	1,18,81,516	1,33,26,953	1,17,08,745
II.—ENGINEERING AND MISCELLANEOUS STORES.					
(a) Stores purchased in the Indian market.	2,54,17,332	2,31,17,653	1,47,03,617	1,25,32,145	48,89,196
(b) Stores purchased direct from outside India.	....	4,36,101	....	....	29,232
(c) Stores purchased from Government Departments.	4,601	42,198	82,800	52,043	97,228
Total Engineering and Miscellaneous stores.	2,54,21,933	2,35,95,952	1,47,86,417	1,25,84,188	50,15,656
GRAND TOTAL .	3,73,03,846	3,98,82,245	2,66,67,933	2,59,11,141	1,67,24,401

APPENDIX V.

Value in Rupees of Stores purchased in each Province during the year 1927-28.

(*Vide* para. 18 of the Report.)



APPENDIX VI.

Value of stores purchased.

(i) Head Quarters.

(*Vide* paragraph 15 of the Report.)

Note.—The diagrams represent the fees earned and not those actually adjusted during the year.

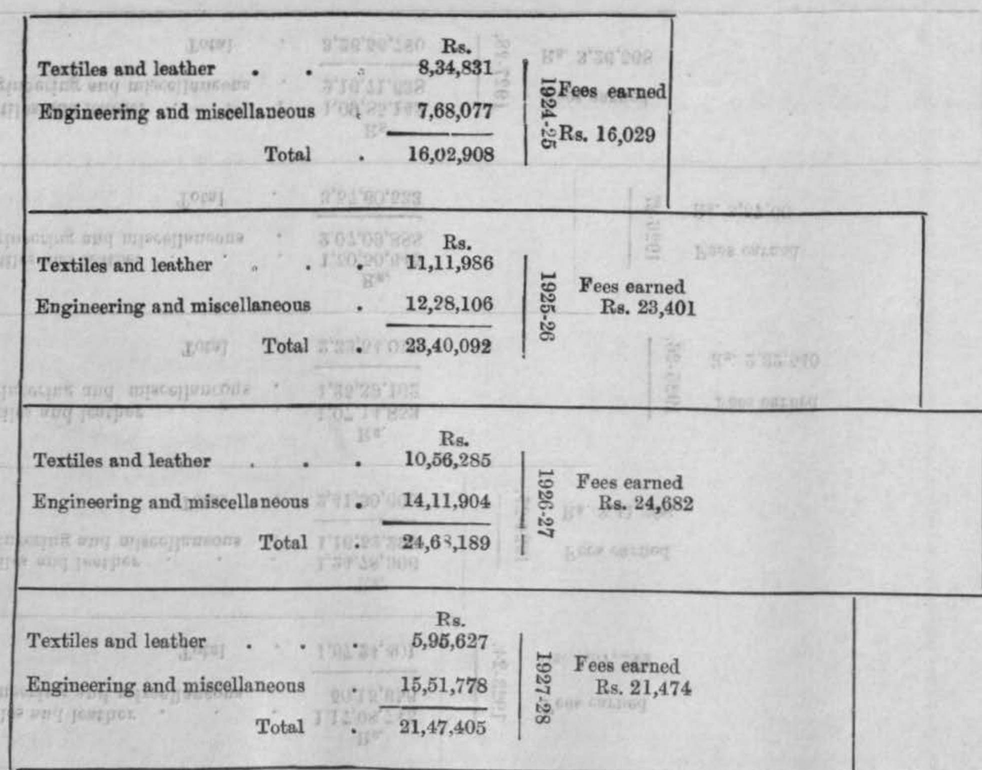
Year	Item	Rs.	Fees earned
1923-24.	Textiles and leather	1,17,08,743	Rs. 1,67,244
	Engineering and miscellaneous	50,15,656	
	Total	1,67,24,401	
1924-25.	Textiles and leather	1,24,78,306	Rs. 2,41,306
	Engineering and miscellaneous	1,16,52,299	
	Total	2,41,30,605	
1925-26.	Textiles and leather	1,07,14,853	Rs. 2,32,540
	Engineering and miscellaneous	1,25,39,162	
	Total	2,32,54,015	
1926-27	Textiles and leather	1,50,50,645	Rs. 3,57,60
	Engineering and miscellaneous	2,07,09,888	
	Total	3,57,60,533	
1927-28.	Textiles and leather	1,09,85,142	Rs. 3,26,568
	Engineering and miscellaneous	2,16,71,638	
	Total	3,26,56,780	

VI (ii) Calcutta Purchase Circle.

(Opened in May 1924.)

(*Vide* paragraph 15 of the Report.)

Note.—The diagrams represent the fees earned and not those actually adjusted during the year.



VI. (*iii*) Bombay Purchase Circle.

(*Opened in September 1924.*)

(*Vide* paragraph 15 of the Report.)

NOTE.—The diagrams represent the fees earned and not those actually adjusted during the year.

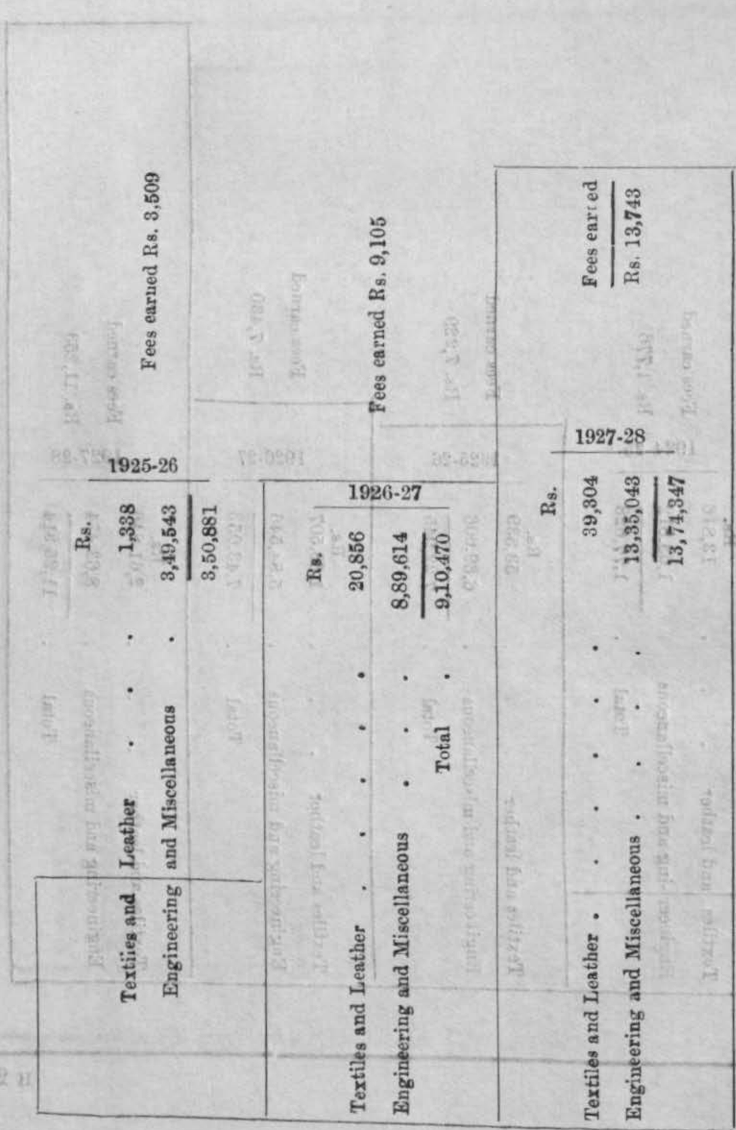
	Rs.	Year	
Textiles and leather	13,816	1924-25	Fees earned Rs. 1,776
Engineering and miscellaneous	1,63,812		
Total	1,77,628		
Textiles and leather	53,339	1925-26	Fees earned Rs. 7,229
Engineering and miscellaneous	6,69,606		
Total	7,22,945		
Textiles and leather	1,58,507	1926-27	Fees earned Rs. 7,430
Engineering and miscellaneous	5,84,546		
Total	7,43,053		
Textiles and leather	2,61,840	1927-28	Fees earned Rs. 11,253
Engineering and miscellaneous	8,63,474		
Total	11,25,314		

VI (iv) Karachi Purchase Agency.

(Opened in September 1925.)

(*Vide* paragraph 15 of the Report).

NOTE.—The diagrams represent the fees earned and rot those actually adjusted during the year.



VI (v). ABSTRACT.

(Vide paragraph 15 of the Report.)

NOTE.—The diagrams represent the fees earned and not those actually adjusted during the year.

1923-24

	Rs.
Textiles and leather	1,17,08,745
Engineering and miscellaneous . .	50,15,656
Total .	1,67 24,401

Fees earned Rs. 1,67,244

1924-25

	Rs.
Textiles and leather	1,33,26,953
Engineering and miscellaneous	1,25,84,188
Total .	2,59,11,141

Fees earned Rs. 2,59,111

1925-26

	Rs.
Textiles and leather	1,18,81,516
Engineering and miscellaneous	1,47,86,417
Total .	2,66,67,933

Fees earned Rs. 2,66,679

1926-27

	Rs.
Textiles and leather	1,62,86,293
Engineering and miscellaneous	2,35,95,952
Total .	3,98,82,245

Fees earned Rs. 3,98,822

1927-28

	Rs.
Textiles and leather	1,18,81,913
Engineering and miscellaneous	2,54,21,933
Total .	3,73,03,846

Fees earned Rs. 3,73,038

APPENDIX VII.

List of "Running" and "Rate" contracts which were in force during the year 1927-28.

(*Vide* paragraph 24 of the Report.)

TEXTILES.

(COTTON.)

1. Bags, dosuti, postal.
2. Bags, kit, waterproof.
3. Bags, nose, canvas.
4. Bags, ration, waterproof.
5. Blouses, drill, khaki.
6. Buckets, canvas, for ponies.
7. Capes, waterproof, Burman.
8. Capes, waterproof, Indian.
9. Cotton waste, coloured.
10. Cotton waste, white.
11. Drill, khaki and grey.
12. Durries.
13. Ground sheets.
14. Haversacks.
15. Hoods for capes, waterproof, Burman.
16. Hoods for capes, waterproof, Indian.
17. Lining cloth.
18. Long cloth, bleached and unbleached.
19. Mosquito netting.
20. Paulins of sizes.
21. Pugree cloth, khaki.
22. Pugree cloth, red.
23. Ropes, head and heel.
24. Sheeting, unbleached.
25. Sheeting bed, bleached.
26. Shorts, drill, khaki.
27. Turbans, cotton, khaki and blue.
28. Twill, khaki.
29. Umbrellas.
30. Uniforms (complete) for Railway servants.
31. Waterproof cloth.

(WOOLLEN.)

32. Blanket cloth, overcoats.
33. Blankets.
34. Broad cloth, superfine.
35. Caps, Balaclava.
36. Cloth, woollen, blue.
37. Drawers.

APPENDIX VII—*contd.*

List of " Running " and " Rate " contracts which were in force during the year 1927-28—contd.

(WOOLLEN)—*contd.*

38. Jackets, cardigan.
39. Twill cloth of colours.
40. Putties, khaki and blue.
41. Socks.

(JUTE, HEMP AND MISCELLANEOUS.)

42. Bags, mail, postal.
43. Buttons, gold.
44. Lace gold.
45. Neckgear, gold.
46. Paulins, flax.
47. Paulins, jute.
48. Rope, manilla.
49. Tassels, gold.

(ENGINEERING AND MISCELLANEOUS.)

50. Acme culverts.
51. Arms racks, Biggs pattern.
52. Asbestos cement sheets, " Bells ".
53. Asbestos cement sheets, " Italit ".
54. Bitumastic solution.
55. Black Japan.
56. Boxes, kit, steel sheet, for sea service.
57. Boxes, tin, for postage stamps.
58. Brushes for cleaning stamps.
59. Brushes for sweeping.
60. Buttons, brass.
61. Cables, vulcanized India rubber single core, 600 megohm grade.
62. Candles, carriage.
63. Cement.
64. Coal tar for painting purposes.
65. Cooking ranges.
66. Cord flexible, twin twisted, cotton finish.
67. Cord flexible, twin twisted, silk finish.
68. Cord flexible, twin twisted, workshop finish.
69. Creosote.
70. Despatch boxes.
71. Fans, electric, ceiling, alternating current.
72. Fans, electric, ceiling, direct current.
73. Fans, electric, table, alternating current.
74. Fans, electric, table, direct current.
75. Grease, cup.

APPENDIX VII—*contd.*

List of " Running " and " Rate " contracts which were in force during the year 1927-28—contd.

(ENGINEERING AND MISCELLANEOUS)—*contd.*

76. Grease, gear.
77. Grease, graphite.
78. Lamps, electric, carbon filament.
79. Lamps, electric, metal filament, gasfilled type.
80. Lamps, electric, metal filament, vacuum type.
81. Lamps, electric, train lighting, gasfilled type, clear and white sprayed.
82. Lamps, electric, train lighting, vacuum type.
83. Lead seals.
84. Locks.
85. Meters, house service, three phase, alternating current watt hour.
86. Meters, house service, watt hour, single phase.
87. Meters, house service, direct current, ampere hour.
88. Meters, water, Glenfield, Rotary.
89. Meters, water, Siemens.
90. Mineral jelly.
91. Motor tyres and tubes.
92. Oil, axle, all-weather.
93. Oil, castor.
94. Oil, fuel.
95. Oil, kerosene, Chester brand.
96. Oil, kerosene, Elephant brand.
97. Oil, kerosene, Snowflake brand.
98. Oil, kerosene, Victoria brand.
99. Oil, linseed, double boiled.
100. Oil, linseed, raw.
101. Oil, lubricating, air compressor, all grades.
102. Oil, lubricating, axle.
103. Oil, lubricating, common, dark.
104. Oil, lubricating, crank chamber, all grades.
105. Oil, lubricating, cylinder, common.
106. Oil, lubricating, cylinder, compounded, ordinary.
107. Oil, lubricating, cylinder, filtered, compounded and pure mineral.
108. Oil, lubricating, cylinder, pure mineral, ordinary and superheat.
109. Oil, lubricating, engine, all grades.
110. Oil, lubricating, internal combustion engines, all grades.
111. Oil, lubricating, machinery, all grades.
112. Oil, lubricating, non-freezing, light.
113. Oil, lubricating, spindle, extra light.
114. Oil, lubricating, spindle, for electric dynamos and motors.
115. Oil, mineral, colza.
116. Oil, transformer.
117. Paints, stiff and ready mixed of fifty-five kinds,
118. Petrol.

APPENDIX VII—*concld.*

List of " Running " and " Rate " contracts which were in force during the year 1927-28—concld.

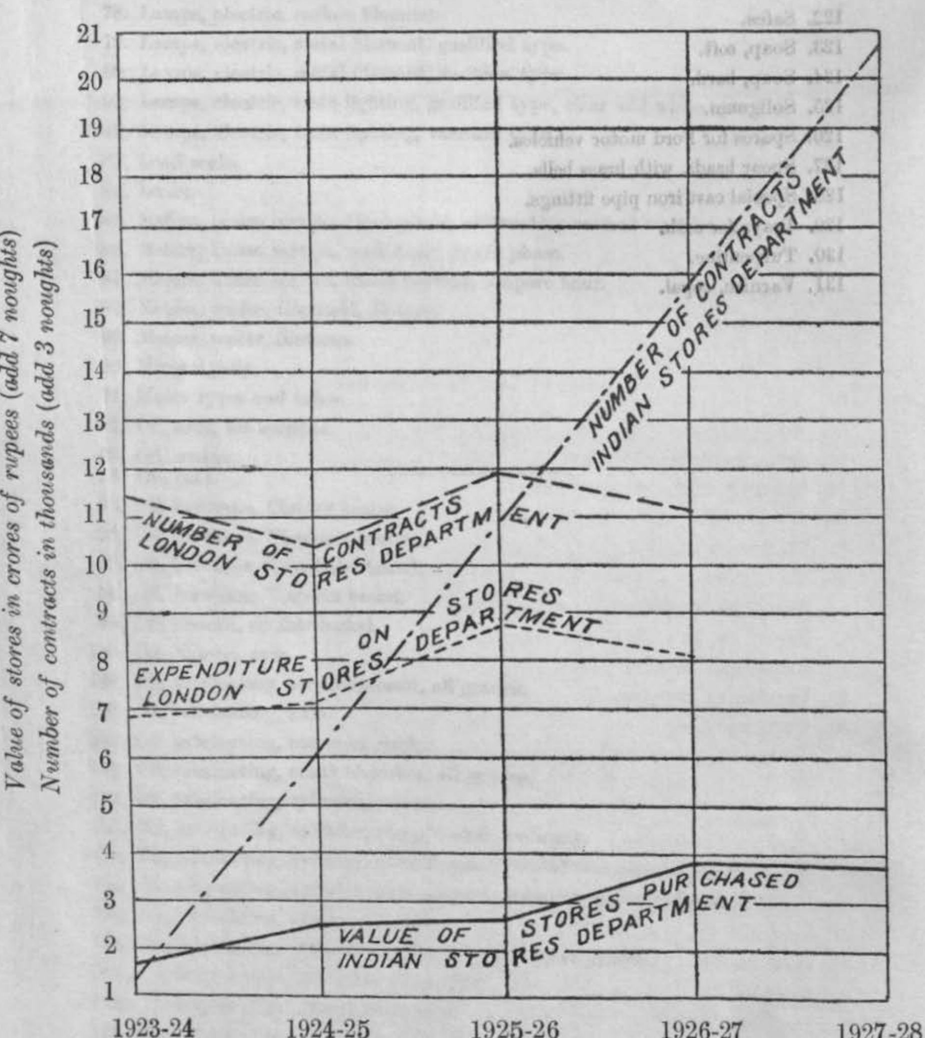
(Engineering and Miscellaneous)—*concld.*

119. Pipes, cast iron.
120. Pipes, galvanized iron, and fittings.
121. Pumice stone.
122. Safes.
123. Soap, soft.
124. Soap, hard.
125. Solignum.
126. Spares for Ford motor vehicles.
127. Spear heads, with brass bells.
128. Special cast iron pipe fittings.
129. Trays for cash.
130. Turpentine.
131. Varnish, copal.

APPENDIX VIII

VALUE OF STORES PURCHASED & NUMBER OF CONTRACTS PLACED BY THE LONDON AND INDIAN STORES DEPARTMENTS

(Vide *paragraph 25 of the Report*)



Note:—

The London Stores Department figures represent expenditure on stores and freight converted into Indian currency at a uniform rate of 1s. 6d. to the rupee. The Indian Stores Department figures represent the value of contracts placed.

APPENDIX IX.

APPENDIX IX.

Comparative statement of purchases made by the London and Indian Stores Departments.

THE FIGURES ARE IN THOUSANDS OF RUPEES.

(*Vide* paragraph 25 of the Report.)

Indenting Departments.	1924-25.							
	Textile and leather stores.		Engineering and Miscellaneous stores.		Other classes of stores (*b*).		Total.	
	London Stores Department.	Indian Stores Department.	London Stores Department.	Indian Stores Department.	London Stores Department.	Indian Stores Department.	London Stores Department.	Indian Stores Department.
CENTRAL.								
ARMY.								
1. Military Engineering Services	..	40	360	3,191	..	..	360	3,231
2. Other Military heads	11,366	8,863	17,040	12	1,989	..	30,395	8,875
Tota lArmy .	11,366	8,903	17,400	3,203	1,989	..	30,755	12,106
CIVIL.								
3. Posts and Telegraphs Department	15	499	1,871	375	5	..	1,891	874
4. Printing, Stationery and Stamps	5	164	38	20	1,092	..	1,135	184
5. Currency Department	..	..	2	..	4,147	..	4,149	..
6. Other Central heads	3	655	525	1,379	186	..	714	2,034
Total Central—Civil .	23	1,318	2,436	1,774	5,430	..	7,889	3,092

7. Railways	461	2,032	13,643	2,611	121	..	14,225	4,643
PROVINCIAL.								
8. Madras	44	(a)	494	..	324	..	862	(a)
9. Bombay	8	142	5,748	2,739	205	..	5,961	2,881
10. Begal	2	(a)	122	2	138	..	262	2
11. Unted Provinces	1	(a)	28	..	10	..	39	(a)
12. Punja	5	274	1,292	1,988	28	..	1,325	2,262
13. Bihar and Orissa	4	423	46	4	176	..	226	427
14. Burma	50	208	822	2	107	..	979	210
15. Central Provinces	(a)	2	70	(a)	8	..	78	2
16. Assam	4	(a)	50	..	1	..	55	(a)
Total Provincial	118	1,049	8,672	4,735	997	..	9,787	5,784
17. Indian States and Public bodies	..	21	..	259	..	..	..	280
18. South African Government	..	(a)	..	..	..	..	..	(a)
19. Total of items below Rs. 500	..	4	..	2	..	..	..	6
GRAND TOTAL	11,968	13,827	42,151	12,584	8,537		62,656	25,911

N.B.—The figures of the India Store Department, London, have been converted at the rate of 1*s.* 6*d.*=Re. 1.
(*a*) Items below Rs. 500.
(*b*) Stores not dealt with by the Indian Stores Department, *e.g.*, medical stores, munitions,stationery and printing, stamps, currency, foodstuffs, etc.

APPENDIX IX—*contd.*

Comparative statement of purchases made by the London and Indian Stores Departments—contd.

THE FIGURES ARE IN THOUSANDS OF RUPEES.

Indenting Departments.	1925-26.							
	Textile and leather stores.		Engineering and Miscellaneous stores.		Other classes of stores (*b*).		Total.	
	London Stores Department.	Indian Stores Department.	London Stores Department.	Indian Stores Department.	London Stores Department.	Indian Stores Department.	London Stores Department.	Indian Stores Department.
CENTRAL.								
ARMY.								
1. Military Engineering Services	..	44	233	3,812	(*a*)	..	233	3,856
2. Other Military heads	4,752	7,633	13,058	279	2,955	..	20,765	7,912
Total Army	4,752	7,677	13,291	4,091	2,955	..	20,998	11,768
CIVIL.								
3. Posts and Telegraphs Department	6	613	1,281	344	27	..	1,314	957
4. Printing, Stationery and Stamps	39	47	207	14	1,938	..	2,184	61
5. Currency Department	..	(*a*)	..	..	2,459	..	2,459	(*a*)
6. Other Central heads	5	824	3,147	775	153	..	3,305	1,599
Total Central—Civil	50	1,484	4,635	1,133	4,577	..	9,262	2,617

7. Railways	624	1,535	37,904	2,672	176	..	38,704	4,207
PROVINCIAL.								
8. Madras	35	(a)	2,435	12	331	..	2,801	12
9. Bombay	3	290	3,273	3,961	231	..	3,507	4,251
10. Bengal	1	..	154	26	111	..	266	26
11. United Provinces	1	..	125	60	20	..	146	60
12. Punjab	(a)	325	590	1,786	23	..	613	2,111
13. Bihar and Orissa	1	71	75	14	61	..	137	85
14. Burma	21	374	873	..	149	..	1,043	374
15. Central Provinces	..	(a)	7	200	24	..	31	200
16. Assam	3	84	20	10	2	..	25	94
Total Provincial	65	1,144	7,552	6,069	952	..	8,569	7,213
17. Indian States and Public bodies	..	35	..	815	..	..	..	850
18. South African Government	..	..	..	..	..	..	..	..
19. Total of items below Rs. 500	..	7	..	6	..	..	..	13
GRAND TOTAL	5,491	11,882	63,382	14,786	8,660	..	77,533	26,668

N.B.—The figures of the India Store Department, London, have been converted at the rate of 1*s*. 6*d*.=Re. 1.

(*a*) Items below Rs. 500.

(*b*) Stores not dealt with by the Indian Stores Department, *e.g.*, medical stores, munitions, stationery and printing, stamps, currency, foodstuffs, etc.

APPENDIX IX—*concld.*

Comparative statement of purchases made by the London and Indian Stores Departments—concld.

THE FIGURES ARE IN THOUSANDS OF RUPEES.

Indenting Departments.	1926-27.							
	Textile and leather stores.		Engineering and Miscellaneous stores.		Other classes of stores (*b*).		Total.	
	London Stores Department.	Indian Stores Department.	London Stores Department.	Indian Stores Department.	London Stores Department.	Indian Stores Department.	London Stores Department.	Indian Stores Department.
CENTRAL.								
ARMY.								
1. Military Engineering Services	(*a*)	40	247	4,768	(*a*)	..	247	4,808
2. Other Military heads	9,089	11,593	9,162	1,061	3,413	..	21,664	12,654
Total Army	9,089	11,633	9,409	5,829	3,413	..	21,911	17,462
CIVIL.								
3. Posts and Telegraphs Department	18	541	1,006	278	32	..	1,056	819
4. Printing, Stationery and Stamps	18	62	28	15	1,308	..	1,354	77
5. Currency Department	..	3	2	(*a*)	3,017	..	3,019	3
6. Other Central heads	2	571	2,754	1,452	425	..	3,181	2,023
Total Central—Civil	38	1,177	3,790	1,745	4,782	..	8,610	2,922

7. Railways	511	2,663	90,729	4,879	257	..	91,497	7,542
PROVINCIAL.								
8. Madras	29	6	1,104	940	530	..	1,663	946
9. Bombay	5	219	2,212	4,087	351	..	2,568	4,306
10. Bengal	2	(a)	107	92	112	..	221	92
11. United Provinces	1	..	19	483	27	..	47	483
12. Punjab	1	426	774	3,925	144	..	919	4,351
13. Bihar and Orissa	6	12	77	48	112	..	195	60
14. Burma	20	30	1,523	12	226	..	1,769	42
15. Central Provinces	..	5	6	738	11	..	17	743
16. Assam	6	97	1	13	1	..	8	110
Total Provincial	70	795	5,823	10,338	1,514	..	7,407	11,133
17. Indian States and Public bodies	..	18	..	805	..	..	..	823
18. South African Government	..	..	..	..	..	..	..	..
19. Total of items below Rs. 500	..	..	..	..	..	..	..	..
GRAND TOTAL	9,708	16,286	109,751	23,596	9,966	..	129,425	39,882

N.B.—The figures of the India Store Department, London, have been converted at the rate of 1*s.* 6*d.* = Re. 1.
(*a*) Items below Rs. 500.
(*b*) Stores not dealt with by the Indian Stores Department, *e.g.*, medical stores, munitions, stationery and printing, stamps, currency, foodstuffs, etc.

APPENDIX X.

List of specifications framed by the Indian Stores Department current at the end of year 1927-28.

(*Vide* paragraph 27 of the Report).

INDEX.

Section No.	Name of Stores. Main head.	Name of Stores. Sub-head.	Classification reference.
1	Bridgework . . .	....	A
2	Engineers' plant (excluding petty tools).	....	B
3	Workshop machinery and heavy tools.	....	C
4	Ballast and permanent-way materials.	....	D
5	Rolling stock . . .	....	E
6	Station materials and fencing	....	F
7	Tools and stores :—	(*a*) Tools	G/Tools.
		(*b*) Stores—	
		(1) Hardware, copper, tin and zinc ware.	G/Ware.
		(2) Lamps and lamp fittings .	G/Lamps.
		(3) Leather and India rubber goods.	G/Leather.
		(4) Metals	G/Metals.
		(5) Painters' stores (oils and paints).	G/O. P.
		(6) Timber	G/Timber.
		(7) Fuel.	G/Fuel.
		(8) Furniture . . .	G/Furniture.
		(9) Cloth, clothing and equipment.	G/Textiles.
		(10) Miscellaneous . .	G/Misc.
		(11) Stationery . . .	G/Stationery.
		(12) Drawing, mathametical and surveying instruments.	G/Instruments.

APPENDIX X—*contd.*

Section No.	Name of Stores.		Classification reference.
	Main head.	Sub-head.	
		(13) Printing presses and materials.	G/Prints.
		(14) Sanitary stores . .	G/Sanitary.
		(15) Waterworks stores . .	G/W. W.
		(16) Building materials . .	G/Buildings.
		(17) Chemicals . . .	G/Chemicals.
8	Electrical plant and materials	....	H.
9	Power and industrial plant .	....	P. I.

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APPENDIX X—*contd.*

(A) *List of Indian Stores Department General Specifications current at the end of the year 1927-28.*

Specification No.	Description.	Current edition.
	SECTION 1.—*Bridgework.*—A.	
A/33	*Steelwork (b)*	*A/33/H.*
A/34	Steel sheet piling with clutch (joist pattern)	A/34.
A/35	*Structural steel; plates, sections, e.g. angles, tees, joists, channels, etc., and bars. (a)*	*A/35/I.*
A/40	*Bridgework (a)*	*A/40/D.*
A/48	*Tank and staging (a)*	*A/48/A.*
	SECTION 2.—*Engineers' plant (excluding petty tools).*—B.	
B/45	Vertical boiler	B/45.
B/50	*Loco multitubular boiler (a)*	*B/50/B.*
B/51	5-ton portable hand operated crane for 5′-6″ gauge railway track.	B/51.
B/52	Scotch hand derrick crane, constructed of steel	B/52.
B/53	Hand operated overhead travelling and traversing crane.	B/53/A.
	SECTION 3.—*Workshop machinery and heavy tools.*—C.	
C/29	*Machine tools, first class*	*C/29.*
C/31	Machine tools	C/31.
	SECTION 4.—*Ballast and permanent-way materials.*—D.	
D/1	Steelwork for light railway track for construction work.	D/1/B.
D/2	Tip trucks for 1′-6″, 2′-0″ and 2′-6″ gauge railway, contractor's type.	D/2/C.
D/6	Built-up points and crossings complete with wing rails, lever boxes and all other fittings.	D/6.
	(2) *Lamps and lamp fittings.—G/Lamps.*	
G/Lamps/1	Dark lanterns, dafadars	G/Lamps/1.
	(3) *Leather and India rubber goods.—G/L.*	
G/L/38	Vacuum brake rubber fittings for use on railways	G/L/38.
„ 39.	Solid tyres for cycles	„ 39.
„ *40*	*Solid tyres and tyre bands for tractors, lorries, etc. (b).*	„ *40/C.*
„ *41*	*Pneumatic tyres, outer covers and inner tubes for cycle cars and motor cycles, etc. (b)*	„ *41/D.*

(*a*) Revised once.

(*b*) Revised twice.

APPENDIX X—*contd.*

Specification No.	Description.	Current edition.
G/L 42	Pneumatic tyres, outer covers and inner tubes for cycles.	G/L 42.
,, *43*	*Leather, buffalo and cow, and sheep skin*	,, *43.*
	(4) *Metals.—G/Metals.*	
G/Metals/9	Manganese steel castings	G/Metals/9
,, *16*	*Mild steel rods for ferro-concrete work (a)*	,, *16/C.*
,, *21*	*Short link chains (iron welded) for all services except marine. (a)*	,, *21/A.*
,, 40	Tinned plates	,, 40/A.
,, 41	Sheets, galvanized steel, flat or corrugated	,, 41/C.
,, 42	Sheets, plain galvanized iron	,, 42.
,, *45*	*Sheets, milled lead (a)*	,, *45/A.*
,, 46	Pig lead	,, 46.
,, 51	Small ropes or cords of steel wire	,, 51.
,, *52*	*Copper alloy for carriage and wagon axlebox brasses.*	,, *52.*
,, *53*	*Solder, soft (a)*	,, *53/A.*
,, 54	Tin sticks for tinning cooking pots and for similar purposes.	,, 54/A.
,, 55	Tin in ingots	,, 55.
,, 56	Copper in ingots	,, 56.
,, 57	White metal in ingots for axlebox lining	,, 57.
,, 58	Copper sheets, annealed for spinning or cold working.	,, 58.
,, 59	Brass sheets, annealed for spinning or cold working.	,, 59.
,, 60	Zinc sheets	,, 60.
,, *61*	*Bearing metal for axles of railway rolling stocks*	,, *61.*
,, *62*	*Solder brazing*	,, *62.*
,, *63*	*Solder silver*	,, *63.*
,, *67*	*Balls and rollers, steel, and ball and roller bearings*	,, *67.*
	(5) *Painters' stores.—G/O. P.*	
G/O. P./1	*Castor seed*	*G/O.P./1.*
,, 3	Shellac	,, 3.
,, 4	Spirits, denatured methylated	,, 4.
,, 13	Oil, aircraft, medium	,, 13.
,, 14	Oil, aircraft, heavy	,, 14.
,, 20	Oil, lubricating, axle for use during hot weather	,, 20/A.
,, 21	Oil, lubricating, axle for use during cold weather	,, 21/*A.*
,, 33	Creosote	,, 33/A.
,, 38	Petrol, aviation	,, 38.
,, 60	Soap, hard	,, 60/A.

(*a*) Revised once.

APPENDIX X—*contd.*

Specification No.	Description.	Current edition.
G/O. P./61	Soap, soft	G/O. P./61/A.
„ 67	Wood tar	„ 67/A.
„ 95-106	Paints and painter's materials	„ 95-106.
„ *107*	*Paints and painter's materials* (a)	„ *107/A.*
„ 108-125	Paints and painter's materials	„ 108-125.
„ *126*	*Paints and painter's materials* (b)	„ *126/B.*
„ 127-136	Paints and painter's materials	„ 127-136.
„ *137*	*Paints and painter's materials* (a)	„ *137/A.*
„ 138-146	Paints and painter's materials	„ 138-146.
„ *147*	*Paints and painter's materials* (a)	„ *147/A.*
„ 148-149	Paints and painter's materials	„ 148-149.
„ *150-151*	*Paints and painter's materials*	„ *150-151*
„ 201	Oil, spindle, extra light	„ 201.
„ 202	Oil, spindle, light	„ 202.
„ 203	Oil, spindle	„ 203.
„ 204	Oil, machinery, light	„ 204.
„ 205	Oil, machinery, medium	„ 205.
„ 206	Oil, engine, light	„ 206
„ 207	Oil, engine, medium	„ 207.
„ 208	Oil, engine, heavy	„ 208.
„ 211	Oil, internal combustion engine, light	„ 211.
„ 212	Oil, internal combustion engine, medium	„ 212.
„ 213	Oil, internal combustion engine, heavy	„ 213.
„ 214	Oil, internal combustion engine, extra heavy	„ 214.
„ 221	Oil, crank chamber	„ 221.
„ 222	Oil, crank chamber, heavy	„ 222.
„ 231	Oil, compressor, light	„ 231.
„ 232	Oil, compressor, medium	„ 232.
„ 233	Oil, compressor, heavy	„ 233.
„ 241	Oil, cylinder, common	„ 241.
„ 242	Oil cylinder, pure mineral, ordinary	„ 242.
„ 243	Oil, cylinder, pure mineral, superheat	„ 243.
„ 244	Oil, cylinder, compounded, ordinary	„ 244.
„ 245	Oil, cylinder, compounded, superheat	„ 245
„ 246	Oil, cylinder, filtered, compounded	„ 246.
„ 247	Oil, cylinder, filtered, pure mineral	„ 247.
„ 251	Oil, non-freezing, extra light	„ 251.
„ 252	Oil, non-freezing, light	„ 252.
„ 253	Oil, common, dark	„ 253.
„ 254	Oil, axle	„ 254.
„ 261	Petrol	„ 261.
„ 262	Kerosene, 1st quality	„ 262

(a) Revised once.

(b) Revised twice.

APPENDIX X—*contd.*

Specification No.	Description.	Current edition.
G/O. P./263	Kerosene, 2nd quality	G/O. P./263.
„ 264	Kerosene, 3rd quality	„ 264.
„ 265	Oil, fuel, 1st quality	„ 265.
„ 266	Oil, fuel, 2nd quality	„ 266.
„ 267	Oil, mineral, colza	„ 267.
„ 271	Oil, transformer	„ 271.
„ 272	Oil, switch.	„ 272.
„ 273	Oil, sealing	„ 273.
„ 281	Oil, castor.	„ 281.
„ 282	Oil, cocoanut	„ 282.
„ 283	Oil, mustard (rape)	„ 283.
„ 284	Tallow	„ 284.
„ 291	Grease, cup	„ 291.
„ 292	Grease, graphite	„ 292.
„ 293	Mineral jelly.	„ 293.
	(6) *Timber.—G-Timber.*	
G/Timber/30	Deodar sleepers	G/Timber/30/A.
„ 34	Teak squares	„ 34/A.
„ 35	Teak scantlings	„ 35.
	(9) *Cloth, clothing and equipment.—G/Textiles.*	
G/Tex/C/1	Twine, cotton 5/10ˢ	G/Tex/C/1.
„ 4	Canvas, cotton, brown	„ 4.
„ 5	Gauze, absorbent cotton, white, bleached	„ 5/A.
„ 6	Bag, boy messenger's	„ 6.
„ 7	Sheets, ground	„ 7.
„ 8	Paulins, cotton	„ 8.
„ 9	Durries, blue striped	„ 9.
„ 10	Bags, kit	„ 10.
„ 11	Bags, ration, waterproof	„ 11.
„ *12*	*Haversack (a)*	„ *12/A.*
„ 13	Capes, waterproof, Indian, with hood	„ 13.
„ 14	Capes, waterproof, Burman	„ 14.
„ 15	Newar, grey	„ 15.
„ *16*	*Putties, cotton of different shades (a)*	„ 16/*B.*
„ *17*	*Capes with hood, waterpoof, for the Postal Department. (a)*	„ *17/A.*
„ 18	Cotton wool for bandages for Medical Department	„ 18.
„ 19	Long cloth, bleached, for the Medical Department	„ 19.
„ *21*	*Bags, dosooti, postal, for Indian Postal Department. (a)*	„ *21/B.*

(*a*) Revised once.

APPENDIX X—*contd.*

Specification No.	Description.	Current edition.
G/Tex/C/23	Drill, cotton, grey	G/Tex/C/23/A.
" 24	Cotton, yarn, grey	" 24.
" 28	*Dusters (third class) (a)*	" *28/A.*
" 30	Sheeting, unbleached	" 30/A.
" *31*	* *Haversack, khaki cotton drill with side gussets (a)*	" *31/A.*
" *33*	*Cotton, sewing, 6-cord white No. 8, 6-cord white No. 40 and 6-cord black No. 40 for making up clothing.*	" *33*
" 34	Muslin (bleached)	" 34.
" *35*	*Long cloth, unbleached for bandages (a)*	" *35/B.*
" 36	Bandage cloth (bleached)	" 36/B.
" *37*	*Alpacca cloth, black*	" *37.*
" *39*	**Paramatta cloth, black (a)*	" *39/A.*
" *40*	*Twill, khaki*	" *40.*
" *41*	*Dhoti cloth, grey*	" *41*
" *42*	*Jean cotton, bleached*	" *42*
" *43*	**Lining cloth (a)*	" *43/A.*
" *44*	**Pugri cloth, cotton, khaki (a)*	" *44/A.*
" *45*	*Canvas, cotton, khaki, proofed for hoods*	" *45.*
" 49	Waste, cotton, white, No. 1A.	" 49/B.
" 50	Waste, cotton, white, No. 1B.	" 50.
" 51	Waste, cotton, coloured, No. 2	" 51.
" 52	Waste, cotton, white or coloured for cleaning ordinary machinery.	" 52.
" *53*	**Drill blue, heavy, medium and light qualities (a)*	" *53/A.*
" *54*	**Drill bleached, heavy, medium and light qualities (a).*	" *54/A.*
" *55*	**Drill khaki, heavy, medium and light qualities (a)*	" *55/A.*
" *56*	*Pugri cloth, cotton, red*	" *56.*
" *57*	**Pugri cloth, cotton, blue (a)*	" *57/A.*
" *58*	**Pugri cloth, cotton, bleached (a)*	" *58/A.*
G/Tex/F/1	Bag, Superintendent's camp, flax canvas, single	G/Tex/F/1.
" 2	Bag, Superintendent's camp, flax canvas, double	" 2.
" 4	Bags, nose	" 4.
" 5	Buckets, canvas, for ponies	" 5.
" *6*	*Bags, planter's, with locking arrangements (unproofed) and planter's bag (proofed) and with locking arrangements. (a)*	" *6/A.*
" 45	Dowlas 54"	" 45.
" *46*	*Paulins (a)*	" *46/C.*
G/Tex/H/1	*Ropes, head and heel, manilla*	*G/Tex/H/1*
" 3	Twine, hemp, English and Country	" 3.
" *4*	*Ropes and cordages, manilla, hawser laid (first quality). (b).*	" *4/B.*

(*a*) Revised once.
(*b*) Revised twice.
* Framed and revised during the year 1927-28.

APPENDIX X—*contd.*

Specification No.	Description.	Current edition.
G/Tex/H/5 . . .	*Ropes and cordages, manilla, hawser laid (second quality).*	*G/Tex/H/5.*
G/Tex/J/1 . . .	*Twine, jute, 1-ply, 2-ply, 3-ply, 4-ply, 5-ply and 6-ply.* (*a*)	*G/Tex/J/1/A.*
„ 12 . . .	Bags, jute, unproofed, for linemen's tools . .	„ 12/A.
„ *22* . . .	*Bags, flax or jute, mail, proofed and unproofed.* (*b*)	„ *22/B.*
„ 23 . . .	Paulins, jute	„ 23/B.
G/Tex/W/1 . . .	Wool, black and mixed, for blankets . . .	G/Tex/W/1.
„ *3* . . .	*Drawers, woollen*	„ *3.*
„ *4* . . .	*Caps, balaclava*	„ *4.*
„ *5* . . .	*Jackets, cardigan*	„ *5.*
„ 6 . . .	Putties, woollen, khaki and blue . . .	„ 6.
„ *7* . . .	*Bunting cloth, red and green*	„ *7.*
„ *8* . . .	*Serge, blue, medium and heavy qualities* . .	„ *8.*
„ *9* . . .	*Serge, green, superior quality*	„ *9.*
„ 15. . .	Serge, white, for Medical and veterinary requirements.	„ 15.
„ *16.* . .	*Flannel, white* (*b*)	„ *16/B.*
„ *18.* . .	*Serge, blue, for shore and sea service* . . .	„ *18.*
	(10) *Miscellaneous.—G/Misc.*	
G/Misc./1 . . .	*Padlocks and locks, box, drawers, etc.* (*b*) . .	*G/Misc./1/E.*
„ 2 . . .	Carbide of calcium	„ 2.
„ 3 . . .	Boxes, kit, for sea service for the Military Engineering Services.	„ 3.
„ 17 . . .	Brush, sweeping	„ 17.
„ 18 . . .	Brush for painting letter-boxes . . .	„ 18.
„ 19 . . .	Brush for cleaning stamps	„ 19.
„ *30* . . .	**Fire extinguisher, hand, chemical* (*a*) . .	„ *30/A.*
	(15) *Waterworks stores.—G/W.W.*	
G/W.W./27 . . .	*Pipes, salt glazed earthenware* (*a*) . . .	*G/W.W./27/A.*
„ 28 . . .	Pipes, wrought iron or mild steel . . .	„ 28/A.
„ 29 . . .	Pipes, wrought iron or mild steel for gas . .	„ 29/B.
„ 30 . . .	Pipes, wrought iron or mild steel for water .	„ 30/A.
„ *43* . . .	*Pipes, lead, for water* (*b*)	„ *43/B.*
	(17) *Chemicals.—G/Chemicals.*	
G/Chemicals/9 . .	Nitric acid, commercial	G/Chemicals/9.
„ 11 . .	Hydrochloric acid, commercial	„ 11.
„ 12 . .	Hydrochloric acid, pure	„ 12.
„ 14 . .	Sulphuric aid, concentrated, for accumulators	„ 14.
„ 15 . .	Sulphuric acid, commercial	„ 15.
„ 16 . .	Alumina-ferric	„ 16.

(*a*) Revised once

(*b*) Revised twice.

*Framed and revised during the year 1927-28.

APPENDIX X—*contd.*

Specification No.	Description.	Current edition.
	SECTION 5.—*Rolling stock.*—E.	
E/28	Weighbridge	E/28.
E/29	*Engine turntable (a)*	*E/29/A.*
E/32	Steam locomotive crane	E/32.
E/33	*Steel fish bolts and nuts (a)*	*E/33/C.*
E/34	Steel dog spikes	E/34/A.
E/35	*Steel, round spikes for rail chairs (a)* . . .	*E/35/B.*
E/36	Steel, screw spikes for railways	E/36.
E/37	*Laminated springs (a)*	*E/37/B.*
E/38	Cast steel wheels with axles for 2′-6″ gauge . .	E-38.
E/42	*Mild steel rivets (b)*	*E/42/D.*
E/47	*Mild steel bolts, nuts and washers, black and galvanized. (a).*	*E/47/B.*
E/48	Cast steel wheels and axles for light tip trucks and unimportant works.	E/48.
E/49	Cast iron superheater headers for locos for Railways.	E/49.
E/50	Steel tyres for locomotives, tenders, carriages and wagons.	E/50.
E/53	Axle boxes, cast steel, for railway stock . .	E/53.
	SECTION 7.—(*a*) *Tools.*	
	(1) *Tools.—G/Tools.*	
G/Tools/1	Tools for earthwork, etc. (picks and beaters kodalies, powrahs, mamooties or hoes, sledge and other hammers, jumper and drill steel).	G/Tools/1.
„ *2*	*Anvils*	„ *2.*
	(*b*) *Stores.*	
	(1) *Hardware, copper, tin and zinc-ware.—G/Ware.*	
G/Ware/30	Wire, ordinary steel, black and galvanized .	G/Ware/30/A.
„ 31	Hoops, iron and steel	„ 31/A.
„ *32*	*Wire barbed*	„ *32.*
	SECTION 8.—*Electrical plant and materials.*—H.	
H/45	Poles, steel, tubular type, for electric power transmission.	H/45.
H/46	*Electrical flexible cords, single conductors, etc. (a)*	*H/46/A.*
H/48	*Fans, ceiling, alternating current (a)* . . .	*H/48/A.*
H/50	Bridge megger testing set	H/50.
H/51	Control panel D. C. motor ironclad . . .	H/51/A.
H/52	Lamp, normal type tungsten filament incandescent	H/52/A.

(*a*) Revised once.

(*b*) Revised twice.

APPENDIX X—*contd.*

Specification No.	Description.	Current edition.
H/53	Lamp, carbon filament, electric . . .	H/53.
H/54	Lamp, gas-filled tungsten filament incandescent electric.	H/54/A.
H/55	Fans, ceiling, and regulators (D. C.) . . .	H/55/A.
H/56	Wire, copper, hard drawn, bare . . .	H/56/A.
H/57	Cable, electric, single, V. I. R. . . .	H/57.
H/58	Wood casing and capping	H/58/A.
H/60	Wire, copper, hard drawn, for telegraph or telephone.	H/60.
H/62	*Cables, electric, medium and low-pressure paper insulated lead covered and steel armoured, three core and two core.*	*H/62.*
	SECTION 9.—*Power and industrial plant.*—P. I.	
P.I./12	Electrical machinery	P. I./12.
,, *19*	*Dragline excavator, oil engine operated (b)* . . .	,, *19/B.*
,, *20*	*Dragline excavator, light weight, steam operated, coal firing. (a)*	,, *20/A.*
,, 21	Dragline excavator, steam operated, coal or oil firing.	,, 21.
,, 22	Dragline excavator, crude oil engine operated .	,, 22.
,, 26	Jolly boat	,, 26.
,, *35*	*Dragline excavator, light weight, steam operated, coal or oil firing. (a)*	,, *35/B.*
,, 36	Electric hoists or winches	,, 36.
,, 37	Dredgers (grab type)	,, 37.
,, *38*	*Petrol paraffin engine (b)*	,, *38/B.*
,, 39	Belting for power drive	,, 39/A.
,, *40*	*Motor boat (a)*	,, *40/A.*
,, 42	Steam pile driving plant	,, 42.
,, *43*	*Engine, crude oil (b)*	,, *43/D.*
,, 44	Dragline excavator (heavy type) . . .	,, 44.
,, *45*	*Dragline excavator, medium weight, steam operated, coal or oil firing. (b)*	,, *45/B.*
,, 49	Dragline excavator	,, 49.
,, 60	Centrifugal pumps	,, 60.
,, 61	Stone breaker, etc., oil engine driven . . .	,, 61.
,, 62	Mortar grinding mill	,, 62.
,, *65*	*Dragline excavator, special, light weight, steam operated, coal or oil firing. (a)*	,, *65/B.*
,, 74	Generators and motors, D. C.	,, 74.
,, 75	Rotary Convertor	,, 75.
,, 76	Transformers, electric power	,, 76.
,, *77*	*Alternators (a)*	,, *77/A.*

(*a*) Revised once.

(*b*) Revised twice.

APPENDIX X—*contd.*

Specification No.	Description.	Current edition.
P.I./80	Plant and machinery	P.I./80.
„ 81	Switchboard, D. C.	„ 81.
„ 82	Generator, D. C., 3 wire type and static balancers.	„ 82.
„ 95	Crane, electrically operated, overhead travelling and traversing.	„ 95
„ *106*	**Road roller, steam operated, coal or wood fired* (a)	„ *106/A.*

NOTE.—Specifications framed during the year 1927-28 are shown in italics.
Specifications revised during the year 1927-28 are shown in italics and marked as revised.
Specifications framed and revised during the year 1927-28 are shown in italics and marked with an asterisk.

(B) *List of Indian Stores Department special specifications current at the end of the year 1927-28.*

Specification No.	Description.
	SECTION I.—*Bridgework.*—A.
A/31	Standard mobilization steel hutting.
A/32	Steel and iron work required by the Indian Public Works Department, Delhi, for the roofing of the Assembly, the Council of State and the Council of Princes' Chambers and Library of the New Legislative Buildings, Imperial Delhi.
A/36	Special construction quarters (portable hutting), for the Lloyd Barrage Project.
	SECTION 2.—*Engineers' plant (excluding petty tools).*—B.
B/48	Portable steam pumping engine equipment with vertical boiler and hose pipe for the Bikaner Canal, Punjab.
B/49	Crane, one 7-ton Scotch hand derrick for the Irrigation Department, Punjab.
	SECTION 5.—*Rolling stock.*—E.
E/30	Metre gauge steam rail motor with goods truck and goods trailer truck for the Sutlej Valley Project, Punjab Public Works Department.
E/31	Steam locomotives, 2′-0″ gauge, for the Sutlej Valley Project, Bikaner Canal, Punjab Public Works Department.
E/40	Steam locomotives, 2′-0″ gauge, for the Sukkur Barrage Project, Sukkur.
	SECTION 7.—(2) *Lamps and lamp fittings.*—G/Lamps.
G/Lamps/11	Railway Mail Service folding candle lantern for the Post and Telegraph Department.

(a) Revised once.

* Framed and revised during the year 1927-28.

APPENDIX X—*contd.*

Specification No.	Description.
G/Lamps/16 . .	Brass sealing lamp for the Post and Telegraph Department.
,, 23 . .	Table lamp, hanging lamp and hurricane lantern, for the Post and Telegraph Department.
,, 24 . .	Incandescent hurricane or hanging lantern petrol pressure type, for the Post and Telegraph Department.
	SECTION 7.—(4) *Metals.—G/Metals.*
G/Metals/47 . . .	*Antifriction metal, high grade and low grade for the Military Engineering Services.*
	SECTION 7.—(5) *Painters stores.—G/O.P.*
G/O.P./ 43 . . .	Oil for use of Government Telegraph Department.
,, 152 . . .	Oil, lubricating crank chamber, high speed steam engine No. 2, for Bengal Nagpur Railway.
,, 153 . . .	Kerosene oil K-1 in bulk suitable for gas making for Bengal Nagpur Railway.
	SECTION 7.—(9) *Cloth, clothing and equipment.—G/Textiles.*
G/Textiles/C-25 . .	File bundling sheet of blue drill for the Post and Telegraph Department.
,, 26 . .	Khaki drill sacks, postman's, for the Post and Telegraph Department.
,, 27 . .	Waterproof khaki drill delivery bag, for the Post and Telegraph Department.
,, 29 . .	Clothing materials for the use of the staff of the Post and Telegraph Department.
G/Textiles/W-17 . .	Great coats with capes for mounted and foot police, Sind.
,, *32* . .	*Cloth blanketting, grey and black, for the use of North Western Railway staff.*
,, *37* . .	*Clothing materials for Government of India menial staff.*
,, *38* . .	*Great coats with capes for Salt and Excise Department, Sind.*
G/Textiles/Misc./1 .	*Waist and shoulder belts of red broad cloth for the Post and Telegraph Department.*
,, *2* .	*Summer uniforms for the East Indian Railway staff.*
,, *3* .	*Winter uniforms for the East Indian Railway staff.*
	SECTION 7.—*Miscellaneous.—G/Misc.*
G/Misc./4 . . .	Boxes, tinned plate, for the Postmaster-General, Bombay.
,, 5 . . .	Despatch boxes, for the Postmaster-General, Bombay.
,, 6 . . .	Safes for the Director-General of Posts and Telegraphs.
,, 7 . . .	Insurance seal type boxes for the Postmaster-General, Bombay.
,, 8 . . .	Lead seals for the Post and Telegraph Department.
,, 9 . . .	Clocks and time pieces for the Post and Telegraph Department.
,, 10 . . .	Tin trays to hold Rs. 1,000 and Rs. 500 for the Post and Telegraph Department.
,, *11* . . .	*Badges, brass, for the Post and Telegraph Department.*
,, *12* . . .	*Letter box for the Post and Telegraph Department.*
,, *13* . . .	*Punching machine for the Post and Telegraph Department.*
,, *14* . . .	*Spear head with brass bells for the Post and Telegraph Department.*

APPENDIX X—*contd.*

Specification No.	Description.
G/Misc./15 . . .	*Safes, burglar resisting.*
„ 16 . . .	*Tin sheets for the Post and Telegraph Department.*
„ 20 . . .	Wooden block for label for the Post and Telegraph Department.
„ 21/A . . .	*Enamelled sheet steel signboards, letter box plates, etc., for the Post and Telegraph Department.* (a)
„ 22 . . .	*Button, brass, for the Post and Telegraph Department.*
„ 23 . . .	*Tin seal holder for the Post and Telegraph Department.*
	SECTION 7.—(15) *Water works stores.—G/W.W.*
G/W.W./31 . . .	Wrought iron or mild steel pipes for water for the Bikaner canal.
	SECTION 8.—*Electrical plant and materials.*—H.
H/59	One switchboard generator panel for Ambala.
H/61	Low and medium pressure paper insulated lead covered and steel tape armoured, 3 core and 2 core electric cables for the Indian Public Works Department, Delhi.
H/63	*Motor alternator set and testing transformer with induction regulator controller for the Government Test House, Calcutta.*
	SECTION 9.—*Power and industrial plant.—P.I.*
P.I./27 . . .	Heave up boat for the Lloyd Barrage Works, Sukkur.
„ *28* . . .	*Heave up boat for the Lloyd Barrage Works, Sukkur.*
„ 41 . . .	Pile driver and frame for the Sutlej Valley Project.
„ 46 . . .	Steam and exhaust piping for the Nalagarh Power House.
„ 47 . . .	Two 25 K. W. oil engine driven generating sets and switchboard for the British Infantry Barracks, Lahore.
„ 48 . . .	Turbo-alternator set, condensing plant, cranes, boiler, economiser pumps, steel chimney, steam and exhaust pipework, switchboard motor converter set, rotary convertors, substation plant, extra high tension feeder cables and auxiliaries for the Public Works Department, Delhi.
„ 50 . . .	Concrete mixers and prime movers required for the Bikaner Canal, Sutlej Valley Project.
„ 51 . . .	Stone breaker plant and screens for the Nalagarh Quarries, Sutlej Valley Irrigation Project.
„ 52 . . .	Generating plant, transformers, switchgear, pump and motors, for the Nalagarh Quarries Power Plant, Punjab Irrigation Department.
„ 53 . . .	Generating plant, transformers, switchgear, pump and motors for the Ferozepore Division Power Plant, Punjab Irrigation Department.
„ 54 . . .	Concrete mixers with motors for the Sutlej Valley Project.
„ 55 . . .	One 53·4 K. V. A. oil engine driven A. C. generating set with exciter for the Northern India Salt Revenue Department, Sambhar Lake.
„ 56 . . .	Switchgear for the Northern India Salt Revenue Department, Sambhar Lake.
„ 57 . . .	A. C. Motor and controlgear for the Government of India Press, Simla.

(a) Revised once.

APPENDIX X—*contd.*

Specification No.	Description.
P.I./ 58 . . .	A. C. motors, controlgear, main switch panel, cable work and wiring for the experimental spinning plant and technological laboratory of the Indian Central Cotton Committee, Bombay.
„ 59 . . .	Two 4 K. W. oil engine-driven generating sets and switchboards for the Military Works Services, Nowshera Sub-district, Northern Command.
„ 63 . . .	Passenger, goods and service lifts required by the Indian Public Works Department, for the new Legislative Buildings, Delhi.
„ 64 . . .	Passenger, goods and service lifts required by the Indian Public Works Department for Government House, Delhi.
„ 66 . . .	Oil engine alternator set, water cooling plant, crane, switchgear and cables for power station, transformer switchgear and cables for a sub-station for the Lloyd Barrage Works, Sukkur.
„ 70 . . .	Oil engine dynamo sets, main fuel tank complete with pipe-work, water cooling plant, crane, switchgear and cables for power station and motors, controlgears and cables for the press machinery for the Government Postal Press, Aligarh.
„ 78 . . .	Additional oil engine alternator sets, water cooling plants, transformers, switchgear and cables for the power station of the Lloyd Barrage Works, Sukkur.
„ 79 . . .	Concrete blockyard plant for the Lloyd Barrage Project, Sukkur.
„ 83 . . .	325 K. W. oil engine alternator sets, water cooling plant, oil fuel storage tank complete with pipework, crane, transformers, switchgear, and connecting cables, induction motors, E. H. T., feeder cables and accessories for power station and miscellaneous plant, for Salt Mines, Khewra.
„ 84 . . .	Goods lifts, Postal Press, Aligarh.
„ 85 . . .	Electrically driven pumping machinery mounted on pontoons for dewatering coffer dams for the Lloyd Barrage Works, Sukkur.
„ 86 . . .	Oil engine driven power plant for the New Power Station, Municipal Board, Mussooree.
„ 87 . . .	Plant for hydro-electric scheme, Municipal Board, Mussooree.
„ 88 . . .	Oil engine driven power station for Jaipore.
„ 89 . . .	Pile driving plant mounted on pontoons for the Lloyd Barrage Works, Sukkur.
„ 90 . . .	Scotch derrick crane, motor driven, to lift 25 and 10 tons, on pontoons for the Lloyd Barrage Works, Sukkur.
„ 91 . . .	Steam driven paddle tugs for the Lloyd Barrage Works, Sukkur.
„ 92 . . .	Barges for the Lloyd Barrage Works, Sukkur.
„ 93 . . .	Oil engine driven (diesel) Bucyrus dragline excavators, 30 B, for the Lloyd Barrage Works, Sukkur.
„ 94 . . .	Oil engine driven (diesel) Bucyrus dragline excavators, 50 B, for the Lloyd Barrage Works, Sukkur.
„ 96 . . .	Electrical plant for the Public Works Department, Punjab.
„ 97 . . .	30-B diesel engine driven Bucyrus dragline excavator for the Lloyd Barrage Works, Sukkur.
„ 99 . . .	Steel barges of capacity up to 100 tons of stone for the Lloyd Barrage Works, Sukkur.
„ 100 . . .	50-B diesel engine driven Bucyrus dragline excavator for the Lloyd Barrage Works, Sukkur.

APPENDIX X—*contd.*

Specification No.	Description.
P.I./101 . . .	*Sluice gates for the Panjnad Barrage on the river Sutlej. thirty-three gates, clear width of opening 60′-0″, 18′ 6″ deep, for Punjab Public Works Department.*
„ *102* . . .	*Gates for the undersluices of the Weir across the river Damodar, etc.*
„ 103 . . .	250 K. W. 2,300 volts full diesel oil engine alternator sets for the Public Works Department, Simla.
„ *104* . . .	*One 600 K. W. 3,300 volts, oil engine alternator set, oil fuel service tanks, etc., for additional power station, Jaipore Public Works Department.*
„ *105* . . .	*Steel barges of capacity up to 100 tons of stone for Lloyd Barrage Works, Sukkur.*
„ *107* . . .	*Three 200 K. W. 400 volts water turbine alternator sets etc., for the Sumera hydro-electric pumping and power scheme for the Public Works Department, United Provinces.*

NOTE.—Specifications framed during the year 1927-28 are shown in italics.
Specifications revised during the year 1927-28 are shown in italics and marked as revised.

APPENDIX X-A.

List of Schedules of Requirements framed by the Indian Stores Department current at the end of the year 1927-28.

(*Vide* para. 28 of the Report.)

S. R. No.	Subject.
	(a) *Framed prior to 1927-28.*
1	Oil engine driven generating set and switchboard for British Infantry Barracks, Lahore.
2	Portable centrifugal pumping equipment with engine petrol paraffin for Punjab.
3	Oil engine driven A. C. generating set, Northern India Salt Revenue Department.
4	Oil engine driven generating set and switchboard for Military Engineering Services, Nowshera.
5	Dragline excavator for Chananwala, Punjab.
6	15 B. H. P. oil engine for Sukkur, Sind.
7	Centrifugal pumping equipment with oil engine for Sukkur, Sind.
8	Scotch hand derrick crane constructed of steel for Sukkur area.
9	Stone crushing plant complete with oil engine equipment for Sukkur area.
10	Weighbridge for Sukkur area.
11	Belting for power drive.
12	Cable, electric, single, V.I.R. insulated (250 volts 600 megohm grade).
13	Steam locomotive crane for Sukkur area.
14	Steam pile driving plant for Sukkur area.
15	Steel sheet piling for Sukkur area.
16	Pile driver and frame for Sutlej Valley Project.
17	Fuel pumping equipment for Peshawar.
18	Electric hoist or winch for Punjab.
19	Water storage tanks complete with steel staging for Sukkur area.
20	Wood casing and capping for electric wiring.
21	Laminated springs for wagons, class C. 3.
22	Machine tools.
23	Direct current ceiling fans.
24	Variable speed D. C. motor and controlgear for Forest Research Institute and College, Dehra Dun.
25	10 B. H. P. oil engine complete with generator and switchboard for Kasauli Hill.
26	Wrought iron pipe and fittings for water for Sukkur area.
27	Mixed paints and linseed oils and turpentine.
28	Hand operated overhead travelling and traversing crane for Lahore.
29	Dredger, grab type, for Sutlej Valley Project.
30	Motor boat.
31	Reduced white lead (stiff paint).
32	Steel work for the workshop building for the Lloyd Barrage.
33	D. C. iron clad flexible unit type starting panel for Ambala.
34	Cast iron pipes for Sukkur area.
35	Motor grinding mill coupled with oil engine equipment, for Lloyd Barrage Works, Sukkur.
36	Kerosene oil engine for Lahore, Punjab.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
37	15-18 H. P. crude oil engine for Punjab.
38	Steel fishbolts and nuts for British Standards 90 lbs. rail.
39	Motor driven house service centrifugal pumping equipment for Sulemanke.
41	12½ B. H. P. kerosene oil engine horizontal type for Saidgi, Waziristan.
42	Mild steel rods for ferro concrete work for Bakshankhan.
43	Mixed paints, linseed oils and turpentines.
44	Steelwork for roofing of New Power House, Delhi.
45	Shunt wound direct current generator and panel, for Ferozepore District.
46	Wrought iron pipes and fittings.
47	Steel sheet piling for Sukkur area.
74	Petrol engine driven pump for fire service.
75	Air compressor 500, c. ft., belt driven with crude oil engine, for Lloyd Barrage Works, Sukkur.
76	Dragline excavator, light weight, caterpillar type, steam operated, coal or oil firing, or crude oil engine drive.
77	Dog spikes.
78	Steam pipes and fittings for Government Model Tannery, Shahdara.
79	D. C. motors, control panels and appliances for Mechanical Transport Workshops, Peshawar.
80	Dragline excavator, special C type, steam operated coal firing.
81	5-ton hand operated crane for headworks, Western Jumna Canal.
82	Bridge over weir at Sulemanke, Sutlej Valley Project (Chananwala).
83	Pump, motor and controlgear for Military Engineering Services, Manzai, Waziristan.
84	8-ton hand operated crane for the Sutlej Valley Project.
85	Oils, lubricating and petrol.
86	Electric fans on single phase, 50 cycle, 240 volts, A. C., for Director General of Posts and Telegraphs.
87	Direct current motor and controlgear.
88	Oil engine centrifugal pumping equipment.
89	Ruston 6 dragline excavator for Hafizabad.
90	D. C. motors with control panels and half couplings and accessories for Mechanical Transport Workshops, Peshawar.
91	Electrically driven centrifugal pumping equipment for the Public Works Department, North-West Frontier Province.
92	Rotary convertor set complete with step down transformer and starting and control equipment.
93	Combined 2′-0″ gauge rail and road bridge over Islam Weir, Sutlej Valley Project.
94	Alternating current ceiling fans and accessories.
95	Dragline excavator, light weight, caterpillar type, crude oil engine drive, for Sutlej Valley Project.
96	Motor generator set and extra motor for cinema work, Viceregal Estates, Simla and Delhi.
97	Electric motor, starter and switch for the Metallurgical Inspectorate, Jamshedpur.
98	Pumping plant for Dagshai Water Supply.
99	Tube well pumping for Allahabad.
100	Mild steel tank, 1,500 gallons capacity, on steel staging 7′-0″ high.
101	Scotch hand derrick cranes constructed of steel, for Lloyd Barrage Works, Sukkur.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
102	Workshops and workshop plant and machinery for Lloyd Barrage Project.
103	Motor and oil engine driven air compressor for Lloyd Barrage Project.
104	Light railway material for Lloyd Barrage Project.
107	Electrically driven pumping sets for Gopi, Head Works, Rawalpindi.
108	Structural steel for reinforced concrete tank, Risalpur, North Western Railway.
109	Shafting and accessories for Ginning Factory, Jaipur State.
110	Steel girders for Ball room, Government House, Delhi.
111	Electrically driven centrifugal pumping equipment, Lahore Cantonment.
112	Steelwork for Workshop Building (Janvri Station), Rohri.
113	Crude oil engine, Lloyd Barrage Works, Janvri Station.
114	A. C. motors for Lloyd Barrage Works.
115	Steel wire rope for dragline excavators.
116	Oil engine driven direct current generator sets and switchgear for Military Engineering Services, Jhansi.
117	Cast iron wheels and special D class steel axles for the Chief Ordnance Officer, Rawalpindi.
118	16 B. H. P. crude oil engine for Lahore.
119	D. C. motor and controlgear for Bannu.
120	Steam and hand operated all round derrick cranes for the Lloyd Barrage Works.
121	Portable centrifugal equipment, Jaipur, Rajputana.
122	Fuel oil and water tanks and staging, and oil engines and pumps for water and oil pumping for the Lloyd Barrage Project.
123	Electrically operated gantry cranes for the Lloyd Barrage Works.
124	Pumping and electric generating plant for camp, Miranshah.
127	Pumping equipment for Military Engineering Services, Saugor.
128	Mild steel tank on steel staging complete with roof, for Miranshah, Bannu.
129	Hand operated crane for Lloyd Barrage Project, Rohri.
130	Steel wire rope, extra flexible, galvanized.
131	Telephone system for Jaipur city.
132	Two-ton hand operated overhead travelling crane.
133	Pumping equipment for Dalowali.
134	Hand operated overhead travelling crane.
135	5 K. W. oil engine driven dynamo set and switchboard, Hindubagh, Baluchistan.
136	Oil engine driven centrifugal pumping equipment.
137	Roof trusses and roofing for engine shed for Sukkur and Janvri, Lloyd Barrage Project.
138	Power Plant for Jubbulpur.
139	Petrol engine driven centrifugal pumping equipment for fire service for Peshawar.
140	Fuel oil storage tank, Lloyd Barrage Works, Sukkur.
141	Electric motor for Postal Press, Aligarh.
142	Tank, galvanized iron, water, and small pumping equipment for the Postal Press, Aligarh.
143	Oil engine driven generator set for Allahabad.
144	Steel tanks and oil engine driven pumping equipment for Lloyd Barrage Works.
145	Triple ram pump and oil engine.
146	Galvanized steel row boat.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
147	Motor lorries for water.
148	Oil tanks and pumps for Sutlej Valley Project.
149	Material trolley for Lloyd Barrage and Canal Construction Works.
150	Bowstring girder bridge to carry water mains, Delhi.
151	Cast iron wheels and mild steel axles.
152	Gantry for Jhansi Power House.
153	600 megohm grade V. I. R. insulated cables and flexible cord.
154	500-1,000 gallons per hour ram pump.
155	Steel roof for Power House, Lloyd Barrage Works, Sukkur.
156	Small electrically driven ice plant for Sulemanke Headworks.
157	Roofing for Power House, Khewra.
158	Portable concrete mixers and prime movers for Lloyd Barrage Works, Sukkur.
159	Steelwork for Multan Water Works.
160	Bridge over Islam Weir.
161	Motor wound reversible and control panel for Lyallpur.
162	Variable speed shunt wound motor and controlgear for Government Press, Delhi.
163	Crude oil engines, 5 B. H. P., for Sialkot.
164	Steelwork and roofing for store shed for Lloyd Barrage Works, Sukkur, Sind.
165	Lancashire boiler for Government Opium Factory, Ghazipore.
166	Air compressors, concrete rammers, rivetters and flexible piping.
167	Pumping plant for Khanna Dak, Chaklala.
168	Crushing tester for Lloyd Barrage Works, Sukkur.
169	6,600 volts subaqueous cable and boxes for the Lloyd Barrage, Sukkur.
170	Steelwork for switchboard gallery Power House, Lloyd Barrage Works, Sukkur.
171	Two-ton overhead travelling and traversing crane for Oudh and Rohilkhand Railway, Lucknow.
172	Centrifugal pump for the Lloyd Barrage Works, Sukkur, Sind.
173	Machine tools and other plant for the Central Workshop, Mysore Railway.
174	Transformers for the Lloyd Barrage Works, Sukkur.
175	Diesel oil engine driven dragline excavators, caterpillar type.
176	Workshop plant and machinery for the Lloyd Barrage Works, Sukkur.
177	Miscellaneous substation equipment for the Lloyd Barrage, Sukkur.
178	Poles for overhead power distribution for the Lloyd Barrage, Sukkur.
179	Electrification of Mari Indus, Military Engineering Services (Northern Command.)
181	Portable pump for petrol.
182	Oil engine driven generators and switchboard for Razmak.
183	Flexible air hose for the Sutlej Valley Project.
184	Sub-station equipment for Municipal Board, Mussoorie .
185	Steelwork and roofing for stables for the Assistant Garrison Engineer, Military Engineering Services, Bareilly.
186	Steam driven, rope operated, overhead travelling and traversing crane.
187	Paraffin engine D. C. generator set for Quetta.
188	Motor driven oil pump and piping for the Power Supply, Lloyd Barrage Works, Sukkur.
189/R.	Steelwork and roofing for Power House, Shahjahanpur Military Engineering Services.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
190	Hand operated overhead travelling and traversing crane.
191	Counterbalance boxes for sluice gates for Ferozepore Weir, Sutlej Valley Project.
192	Low pressure turbine driven generator set, condensing plant and accessories.
193	Storage battery for Imperial Institute, Veterinary Research, Muktesar.
194	Oil engine driven D. C. generator sets and switchboard for Military Engineering Services, Jhansi.
195	Steelwork for Jaipur Power House, Jaipur Station.
196	Pumping equipment for Kohat District.
197/R.	Steelwork and roofing for Military Engineering Services, Razmak, Waziristan.
198	Tube well with motor driven pump.
199	Ford lorry, 1 ton, for Orki, Sutlej Valley Project.
200	Steel trough flooring, Military Engineering Services.
201	Water tube boiler for Forest Research Institute, Dehra Dun.
202	Double girder hand operated overhead travelling and traversing crane.
203	Combined dragline excavator and grabditcher for Sheikhpura Division, Punjab.
204	Pressed steel tanks for Assistant Garrison Royal Engineer, Lahore.
205	Electrically driven centrifugal pumps for the Sutlej Valley Project.
206/R.	Boulton water elevator for Military Engineering Services, Quetta.
207	Refined oil engine for the Assistant Garrison Royal Engineer, Lahore.
208	Vertical boiler for steam pump 100 lbs. per sq. inch pressure for Military Engineering Services, Lahore.
209	Self-supporting steel chimney for Military Engineering Services, Clothing Factory, Shahjahanpur.
210	A 10-ton steam road roller for Military Engineering Services, Abbottabad.
211	Hoist, drag, derricking and tipping ropes and slewing stays for No. 300 dragline excavator, Ruston's make.
212	Lancashire boiler for the Opium Agent and Commissioner of Income Tax, United Provinces.
213	Mortar mills and motors for the Lloyd Barrage and Canals Construction, Sukkur.
214	Road roller equipment for the Public Works Department, Irrigation Branch, Punjab.
215	Power distribution equipment for Jaipur.
216	Mild steel tanks for water storage for the Legislative Councils Chambers, Imperial Delhi.
217	A steel barge for the Indian Cotton Committee.
218	Electrically driven pumping equipment for water supply, Military Engineering Services, Bareilly.
219/R.	Steel trusses for workshops roof and steelwork and roofing for siding shelters for Military Engineering Services, Shahjahanpur.
220	Mild steel tank with steel staging and complete with galvanized corrugated sheet steel curved roof for Military Engnieering Services, Ranikhet.
221	Petrol engine driven centrifugal pumping equipment, Fire Protection Scheme, Royal Air Force, Risalpur.
222	Self-sustaining pulley block and trolley for water supply, Military Engineering Services, Bareilly.
223/R.	Storage tank, hand pumping storage cabinets and filters for lubricating oils for the Government Postal Press, Aligarh.
224	Power station plant for Ferozepore Cantonment.
225	Steam road rollers.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
226	Lea coal meter for mechanical stoker.
227	Miscellaneous electrical distribution equipment for Jaipur.
228	Light railway materials for the Lloyd Barrage Works, Sukkur.
229	150 B. H. P., 3,300 volts, motor for the Ginning Factory, Jaipur.
230	Electrically driven tube well pumping sets for Multan Water Works.
231	Dog spikes for the Lloyd Barrage Works and Canals Construction.
232	Fishbolts and nuts, fishplates and 62 or 60 lbs. rails for the Lloyd Barrage Works and Canals Construction.
233/R.	Portable stone crushers with screens and crude oil engine or alternatively electric motor driven for the Lloyd Barrage Works, Sukkur.
234/R.	Stone breaking plant, screens, hoppers and oil engines for the Lloyd Barrage and Canals Construction, Sukkur.
235	Right and left hand turnouts for the Lloyd Barrage and Canals Construction.
236	Target frames for Military Engineering Services.
237	Mild steel moulding boxes for moulding concrete blocks for Lloyd Barrage Works.
238	Vertical cross tube boiler for the Agricultural Department, Government of India, Bangalore.
239	Steel bins for pneumatic tyre stores, Military Engineering Services.
240	Disintegrators with portable steam engines for surkhi grinding.
241	Oil engine centrifugal pumping sets for sewage water, Public Works Department Punjab.
242	Light railway construction track and stock for Lloyd Barrage Works, Sind.
243	Water supply plant for Lloyd Barrage Works, Sukkur.
244	Fishplates, fishbolts and nuts for Lloyd Barrage Works, Sukkur.
245	Galvanized steel tanks for Lloyd Barrage Works, Sukkur.
246	Tip trucks.
247/R.	Plywood chests for Benares Opium Agency.
249	Black asphalt and bitumen for the Public Works Department, Central Provinces.
250	Rack bars for canal regulators, Irrigation Department, Baluchistan.
251	Oil piping and pump for Jaipur.
252	Rubber tyred platform trucks for carriage of boxes.
253	Lever boxes and lever connecting rods for the Lloyd Barrage Works, Sukkur.
254	Blocks and wire rope for Islam Division, Sutlej Valley Project.
255	Chlorinator tanks for Military Engineering Services.
256	Switchboard for Military Engineering Services, Rawalpindi.
257	Steam or hand operated crane for use on broad gauge for Sutlej Valley Project.
258	Jolly boats for Lloyd Barrage Works, Sind.
259	2′-0″ gauge locos, tip trucks, 20-lb. rails, crossings.
260	One manual fire engine for the Lloyd Barrage Works, Sukkur.
261	Oil engine driven centrifugal pumping set for Military Engineering Services, Waziristan.
262	Pipework and fittings for Jaipur Power Plant.
263	Rotary balancer set and switchboard for Military Engineering Services, Lahore.
264	Electrically driven pumping equipment for pumping station, West Ridge, Rawalpindi.
265/R.	Steelwork and roofing material for Military Engineering Services.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
266	Boring tools and plant for Central Canal, No. 2 Division.
267	4-ton petrol lorries, Mandi Hydro-electric scheme.
268	Hoisting grabs, for the Executive Engineer, Islam Division, Sutlej Valley Project.
269	Oil engine driven power pumping plant for Matheran Water Supply.
270	Sentinel patent locomotive.
271	Motor driven fuel oil pumping set and pipework for power station Salt Range Division Khewra.
272	Tip wagons.
273	25 B. H. P. kerosene oil engine for Military Engineering Services, Mandalay.
274	Iron wheel barrows.
275	Boring tools and plant for Canals Construction, Western Circle, Karachi.
276	Alumina-ferric.
277	Direct current and single phase alternating current ceiling fans.
278	Railway material, metre gauge.
279	Goods lifts for Imperial Record Office and Secretariat West Wing, Delhi.
280	E. H. T. main feeder panels for the Public Works Department, Delhi.
281	Steel materials for North Western Railway.
282	Motor driven house service centrifugal pumping equipment for the Public Works Department, Delhi.
283	20-30 H. P. Fiat touring car, Model de luxe 510.
284	Internal combustion tractor and ploughs for the Public Works Department, Delhi
285	Motor launches and Norwegian skiffs.
286	Alumina-ferric for the Public Works Department, Delhi.
287	Mild steel moulding boxes for moulding concrete blocks.
288	Dogspikes.
289	Disintegrator, circular saw and band saw.
290	Two-ply boards.
291	5 K. W. oil engine driven generator sets, switchboard and pumping sets for Jandola.
292	Asphalt and tar, etc., for the Public Works Department, Punjab.
293	Power plant for Nagpur station, Great Indian Peninsula Railway.
294	Portable internal combustion engine air compressor set.
295	Electrically driven overhead hoisting, traversing and travelling cranes for the Chief Forest Officer, Andamans.
296	Tip wagons
297	Water meters.
298	Motor launch.
299	Fire extinguishers.
300	Automatic and manual telephone equipment for Hydro-electric scheme, Punjab.
301	Hand or bullock power pump.
302	Steam road rollers, tandem type.
303	Combined steam grab and dragline excavators.
304	Electrically driven centrifugal pumping equipment for Military Engineering Services, Rawalpindi.
305	Four tyne scarfier, independent type.
306	Asphalt cookers and bitumen boilers.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
307	Steel water tank and staging.
308	Tin trays for the Postal Department.
309	54′-0″ span supporting girders and sliding doors.
310	Vertical boiler and feed pump.
311	Cement testing apparatus.
312	Double bogie cars and platform wagons, 2′-0″ gauge.
313	One K. W. petrol-paraffin engine driven dynamo set with switchboard for Military Engineering Services, Murree.
314	Sheet steel flume.
315	Diesel oil engine and ice making plant for the Maclagan Engineering College, Moghalpura, Lahore.
316/R	3 spans of 23′-6″ clear.
317	Mild steel moulding boxes for moulding concrete blocks.
318	Shafting, cranks, etc., for electrically driven punkhas.
319	Steam operated pump and steam plant for Poona Water Works.
320/R	Oil engine driven power plant for Kapadvanj water supply.
322	Bridge girders for Assam Bengal Railway.
323	Portable workshop for use with dragline excavator for Sukkur.
324	Steel flexible wire ropes, galvanized, for the Public Works Department, Punjab.
325	Trucks, mild steel, for 2′-6″ gauge for the Northern India Salt Revenue Department.
326	Weighbridge for broad gauge track for the Public Works Department, Punjab.
327	Steam driven pumping plant for the Public Works Department, Central Provinces.
328	Steel moorings buoys.
329	Road rollers for the Public Works Department, Central Provinces.
330	Motor driven pumping plant and chlorinator for Military Engineering Services, Kohat.
331	Ash handling plant for the East Indian Railway, Moradabad.
332	Grain handling plant for the Public Works Department, Bihar and Orissa.
333	Motor launch for the Public Works Department, Punjab.
334	Steam loco crane for 5′-6″ railway track for Public Works Department, Punjab.
335	Iron gates for canal.
336	Oil engine driven power plant for North Western Railway, Peshawar.
337	2½ K. W. paraffin-oil engine driven dynamo.
338	One span 8′-2″ clear for Mysore Railways.
339/R	Oil engine driven rock crushers and concrete mixers for Madras.
340	Oil engine driven stone crushing plant for the Public Works Department, Punjab.
341	Oil engine driven D. C. set and switchgear for Imperial Institute of Veterinary Research, Muktesar.
342	51 spans of 20′ overall, with 11·1 ft. centres of main girder.
343	Filtrator or similar scale removing apparatus for Public Works Department, Punjab.
344	Tanks, wrought iron, for fuel oil for Public Works Department, Sind.
345	2′ gauge locos and trucks for the Public Works Department, Punjab.
346	One span 60′-0″ clear (Metre gauge).
347	Steam engine and boiler, wood fired, for operating a ropeway for the Forest Department, Punjab.

APPENDIX X-A—*contd.*

S. R. No. **Subject.**

348 Road rollers, gritting machine, and bitumen boilers for the Public Works Department, Punjab.

349/R Top feed clack boxes for locomotives for the North Western Railway.

350 Peshawar Cantonment power station plant, steam engine driven, for Military Engineering Services.

351 Oil engine D. C. generators and switchboard, etc. for North Western Railway, Bhatinda.

352 200 galvanized iron watering troughs for Mobilization purposes.

353 Steelwork and roofing for covered stands for mules, Military Engineering Services.

354 20/25 K. W. generator sets and 16 K. W. portable paraffin sets, for Military Engineering Services, Lahore.

355 10 K. W. generators and switchboard for Military Engineering Services, Multan.

356 Pumping plant, crude oil engine and accessories for Military Engineering Services.

357 Hand operated gantry crane, pulley blocks, etc., for Punjab Hydro-electric branch.

358 Roof trusses and sliding doors.

359 2-100 K. W. at ·8 P. F. oil engine driven A. C. generators for Cauvery Metur Project for Irrigation Department, Madras.

360 2-40 K. W. oil engine D. C. generator for North Western Railway, Amritsar.

361 Paraffin oil engine driven generator.

362 Steel almirahs and galleries.

363 Oil engine pumping plant for Ranikhet.

364/R Oil engine pumping plant for Lansdowne.

365 One electric motor for Railway Department, Railway Board.

366 Motor and controlgear for the Forest Research Institute, Dehra Dun.

367 Electric driven pumping sets, switchgear and transformers for Gun Rock, Secunderabad.

368 Crude oil engine driven three-throw ram pumps and spares for Hangu Water Works, North-West Frontier Province.

369 Steel troughs.

370 Vertical cross tube boiler for Wellington.

371 Two 50 B. diesel engine driven Bucyrus dragline excavators.

372 Alum mixing equipment and chlorinating plant for Muktesar Water Supply, Muktesar.

373 Plant for deep well boring in alluvial soil for the Agricultural Department, Punjab.

374/R Refrigerating pipe coils for cold storage rooms, etc.

375 Hot water apparatus for Military Engineering Services, Harnai.

376 Salt screening plant for Khewra.

377/R Motor boat for the Public Works Department, Delhi.

378 Compressor set, A. C. motor driven, for Salt Department, Northern India.

379 Electric substation plant (static transformer, condenser, etc.) for Military Engineering Services, Jubbulpore.

380 Motor alternator set with transformer, switchgear and instruments for extra high tension tests for the Government Test House.

381 Oil engine driven tube well pumping set for North Western Railway, Montgomery, Multan and Saharanpore.

384 Pumping plant, crude oil engine and accessories.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
385	Oil engine driven pumping plant and accessories for Arawali Water Works, Military Engineering Services.
386	Tanks for fuel oil.
387	Tipping wagons, broad gauge, for Lloyd Barrage Works, Sukkur.
388	Motor driven centrifugal pumping sets for Salt Mines.
389	Alternating current punkah motors, reduction gears and control panels for Military Engineering Services, Agra.
390	Anchors.
391	Heating apparatus, hot water, for Rawalpindi, residence of General Officer Commanding Northern Command, Military Engineering Services.
392	40 K. W., 440/220 volts D. C. generating set, cooling plant, crane, switchboard and connecting cables for Ambala, North Western Railway.
393	30 K. W. 440/220 volts, D. C. generating set, cooling plant, crane, switchboard and connecting cables for Khanewal, North Western Railway.
394	Oil engine driven direct current generating sets for Military Engineering Services, Jhansi.
395	Windmill and pumping plant for the Agricultural Department, Punjab.
396	Motor driven centrifugal pumping sets for tube wells.
397	Electrically driven 3-throw ram pump for Military Engineering Services, Ferozepore.
398	Road rollers for Public Works Department, Central Provinces.
399	Chests, tool, empty (blacksmiths, carpenters and wheelers).
400	Paper insulated lead sheathed and steel tape armoured D. C. cables and boxes, for Public Works Department, Delhi.
401	Electrical testing equipment for the Assistant Controller of Inspection, Delhi.
402	Indicators of steam and internal combustion engines for the office of the Assistant Controller of Inspection, Delhi.
403	Steelwork for proposed shed at Kurla for inspection and repairs of electric cars.
404	V. I. R. single core cable and distribution boards for Lloyd Barrage Works, Sukkur.
405	Locomotive fittings for North Western Railway.
406	Steel troughs.
407	7 K. W. oil engine dynamo set, etc., for Nathiagali.
408	Tower wagon.
409	Pressed steel tank on steel staging.
410	Squirrel-cage motor and controlgear for centrifugal pumps for Lloyd Barrage Works, Sukkur.
411	Kerosene oil engine driven pumping set for Military Engineering Services, Sabathu.
412	Steel tanks and staging.
413	Portable compressor set for the Central Provinces District, Military Engineering Services.
414	High tension paper insulated electric cable, and truck type cubicles for the Galogi power station, Mussoorie.
415	Steel wire rope (galvanized).
416	Power distribution equipment for the Mussoorie high tension transmission system.
417/R	Dragline excavator for Lower Chenab Canal, Punjab.
418	Telescopic ladder for the Legislative Buildings, Delhi.
420	Target apparatus.
421	3-ton portable workshop crane for Garrison Engineer, Secunderabad.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
422	Additional condensing plant for Peshawar power station for Military Engineering Services.
423	Motor driven Sirocco fans for Salt Mines, Khewra.
424	Canal gate steel.
425	Steel road bridges.
426	Motor generator set and battery equipment for Prince of Wales Royal Indian Military College, Dehra Dun.
427	Watering carts.
428	Air lift plant.
429	Water sterilizer, chlorine gas type, for the Public Works Department, Delhi.
430	Electric distribution boards for Government House, Imperial Delhi.
431	Crude oil engine, pumping plant and piping for Lloyd Barrage Works, Sukkur, Sind.
432	Steelwork and roofing for the Power House, Dehra Dun.
433	Oil engine driven tube well centrifugal and air lift pumps for North Western Railway.
434	Oil engine driven generating set and switchboard for the Military Engineering Services, Landikotal.
435	Oil engine driven pumping plant and steel storage tanks for the Public Works Department, Central Provinces.
436	Steel tank with staging.
437	Ice-making plant.
438	Roof trusses.
439	66 K. V. A. motor alternator sets and switchgear for the electrification of "K" Supply Depot, Peshawar.
440	Collapsible gate.
441	Wrought iron railing.
442	Shower baths.
443	Hot water boiler for the central heating system at the Sandeman High School, Quetta.
444	Hand operated overhead traversing and travelling crane, stanchions, crane gantry and accessories.
445	Oil engine driven air lift tube well water pumping equipment for Sikandra, Agra.
446	Steel road bridges.
447	Oil engine driven generating set for the College, Rungpore.
448	Hydro-electric plant for the Upper Ganges Canal.
449	Oil engines for Reserve Engineering Stores, Lahore Cantonment.
450	Centrifugal and deep well pumps for Reserve Engineering Stores, Lahore Cantonment.
451	Oil engine driven generating set for the Military Engineering Services, Malapuram.
452	Spans of various lengths for Shimoga Arsalu Railway (Mysore).
453	Steelwork and roofing for office and stores building, Mussoorie Electric Supply Extensions.
454	Switchboard and V. I. R. cable for Uhl River Hydro-electric Project.
455	Tipping trailors for Uhl River Hydro-electric Project.
456	Steelwork for mild steel railings.
457	Overhead hand operated crane for Alimasjid, Peshawar.
458	Oil engine driven direct current generating set for Military Engineering Services, Calicut.
459	Crude oil engine driven direct current generators and electrically driven pumping set for Sararoga and Kotkai.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
460	Steel road bridges.
461	Poles and insulators, overhead power distribution for Lloyd Barrage, Sukkur.
462	Copper conductors, cables and switches, for Lloyd Barrage, Sukkur.
463	Steel road bridges.
464	3-80 K. W. sets for Military Engineering Services, Fyzabad.
465	Rail motor coaches for Mysore State Railway.
466	Electric Substation plant for Hugh Rose substation, Military Engineering Services, Jubbulpore.
467	Hand operated overhead travelling and traversing crane.
468	Pressed steel tanks.
469	Electrical equipment for the conversion of Scotch derrick hand operated cranes into electric drive for Lloyd Barrage Works, Sukkur.
470	3-ton transformer trucks.
471	Cables and boxes for Military Engineering Services, Lahore.
472	H. T. and L. T. iron clad switch pillars for the Military Engineering Services, Lahore.
473	Incoming H. T. switch cubicles for the Military Engineering Services, Lahore.
474	Grader and tractor for Communication Board, Lahore.
	Framed during 1927-28.
475	Plywood chests for Benares Opium Agency.
476	Tar and pitch boiler for Military Engineering Services, Fort, Delhi.
477	Hand driven concrete mixers for the Public Works Department, Ratu Division, Sutlej Valley Project.
478	Steel sheet piles.
479	Steel almirahs and galleries for map record.
480	Electric equipment for tunnel construction for Uhl River Hydro-Electric Project.
481	Turbo-generator sets and electric head-lamps for Locomotives, Mysore Railway.
482	6 spans of 20′-0″ clear and 1 span of 40′-0″ clear.
483	Diesel oil engine driven dragline excavator, caterpillar type, complete with electric lighting plant and fans, for Sutlej Valley Project.
484	Diesel or semi-diesel oil engine driven combined grab and dragline excavator for the Irrigation Works, Punjab.
485	Electric welding plant for Lloyd Barrage, Sukkur.
486	Goliath crane for Transhipment Yard.
487	Steam operated derrick crane for Dockyard.
488	Ice-making and refrigerating plant for Government House, Delhi.
489	Galvanized steel wires.
490/R	The supply and installation of electric cooking appliances at Government House, New Delhi. (Revised once.)
491	Mooring buoys for Lloyd Barrage Works, Sukkur.
492	Automatic sprinkler installation and fire alarm system for Record Office Building, New Delhi.
493	Electrical substation plant and equipment for His Majesty's Mint, Calcutta.
494	Cast iron sluice gates.
495	Plant for Nasirabad power station for the Military Engineering Services, Nasirabad, Rajputana.
496	Direct current punkah motors, reduction gears and control panels for Military Engineering Services, Lucknow.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
497	One integrating watt-hour meter portable type for His Majesty's Mint, Calcutta.
498	Testing instruments and apparatus for the Workshops and Machinery Division, Cauvery-Metur Project.
499	Fuel-oil carts for the Military Engineering Services, Fyzabad.
500	Oil-engine generator sets and control panel for Drigh Road Power Station, Military Engineering Services, Karachi.
501	One portable testing poly-phase A. C. integrating watt-hour meter and six single-phase A. C. service watt-hour meters for the Public Works Department, Delhi.
502	One petrol driven motor omnibus suitable for 25 to 30 passengers for the Indian School of Mines, Dhanbad.
503	Pressed steel tank on steel staging for the Military Engineering Services, Agra Cantonment.
504	Electrical testing instruments for the Indian School of Mines, Dhanbad.
505	One 48″ central-drive type motor driven railway wheel lathe for Kanchrapara Workshops, Eastern Bengal Railway.
506	Switchboard type ammeters and voltmeters for the Indian School of Mines, Dhanbad.
507	Portable sack type steam disinfector sets for the Inspector-General of Prisons, Madras.
508	Three 40 K. W. 240/480 volts, 3 wire, oil engine D. C. generating sets, etc., for the Cambellpore Cantonment Power Station, Military Engineering Services.
509	Generating plant for Kamptee power station, Military Engineering Services.
510	Air compressor sets for the Quarries Division, Sukkur.
511	Drill steel bar for rock drills for the Quarries Division, Sukkur.
512	Steel wire ropes for 20-ton steam cranes and 15-ton hand crane.
513	Electrical plant and equipment for the Indian School of Mines, Dhanbad.
514	Steelwork and roofing for Simla Power House for the Guma Water Works Scheme.
515	Two air compressor sets for the Eastern Bengal Railway.
516	One 15 K. W. oil engine generator set, switchboard and plant for the Lawrence Royal Military School, Sanawar.
517	One light locomotive, 5′-6″ gauge for the Lower Bari Doab Canal Railway, Punjab.
518	Steelwork for Postal and Telegraph buildings at Sukkur.
519	Suction chlorinators (experimental) for the Reserve Engineers Stores, Lahore Cantonment.
520	Electrical testing instruments and plant for the Military Engineering Services, Fyzabad.
521	Oil cabinets, 100 gallons capacity, for workshops for the Military Engineering Services, Fyzabad.
522	Two-5 K. W. oil engine generator sets with cooling tanks and switchboard for the North Western Railway, Moghalpura.
523	One 600 tons Hydraulic wheel press for the Eastern Bengal Railway, Kanchrapara.
524	One mercury-arc rectifier for battery charging for the Power Supply Division, Sukkur.
525	One motor-driven rotary pump for pumping fuel oil for the Military Engineering Services, Landikotal.
526	Tools for small workshop for Superintending Engineer, IV Circle, Punjab Public Works Department, Lahore.
527	Tower wagon for the Military Engineering Services, Fyzabad.
528	Power Station for Madras (St. Thomas Mount).
529	One railway turn-table 4′-8½″ gauge for the Deccan Irrigation Circle, Public Works Department.

APPENDIX X-A—*contd.*

S. R. No. Subject.

530 Motor driven centrifugal pumping sets for the Military Engineering Services, Lucknow.

531 Steelwork for trusses, purlins, etc., for the Railway Staff College, Dehra Dun.

532 Combined wall-plug and switch (Wandsworth pattern) for Government House and Legislative Buildings, New Delhi.

533 Windmill driven pumps for the water-logging committee, Punjab.

534 Aeroplane hangars at Quetta, Lahore and Kohat for the Royal Air Force.

535 Tank for fuel oil.

536 One 3 ton hand operated travelling and traversing crane, rails and rail girders and stanchions for the Military Engineering Services, Kamptee.

537 Plant for tube-well at Peshin Fort, Yaru, for the Military Engineering Services, Baluchistan District.

538 Steel road bridges for Sutlej Valley Project.

539 Oil engine driven pumping set for the Public Works Department, Manipur.

540 Steel arch centres for Lloyd Barrage Works, Sukkur.

541 Tube-well pumps and oil engine driven air compressor plant for Gujranwala for the Public Works Department, Punjab.

542 Low-lift centrifugal pump, suction piping and foot valve for the Central Workshops Public Works Department, Amritsar.

543 Serge and khaki drill coats for Survey of India menial staff.

544 Rock crushing and granulating plant for the Hydro-electric branch, Public Works Department.

545 Steel wire rope for derrick boat.

546 Bitumen melting boilers and spraying machines for the Military Engineering Services, Lahore.

547 Trucks for carrying 4″ pump sets.

548 Hydraulic rams and accessories for the Military Engineering Services, Lansdowne.

549 Switchboards field, and switch units magneto for the Director of Contracts, Army Headquarters.

550 Grooved victaulic-jointed piping 4″ bore and victaulic joints for the Reserve Engineer Stores, Lahore.

551 One 36 feet passenger motor launch for the Military Engineering Services, Northern Command.

552 Six-inch cast iron water columns for the Mysore Railways.

553 Portable engine driven air compressor set and rock-drilling apparatus for motor lorry transport for the Army Headquarters, Simla.

554 Machine shop and joiners shop machine tools for the Saidpur Loco Workshops, Eastern Bengal Railway.

555 Composite tunnel and watering pipe line for the Hydro-electric Branch, Public Works Department, Punjab.

556 Steelwork and roofing for the Power House, Fyzabad.

557 Locomotive cranes for handling coal.

558 One sewing machine for the Saidpur Loco Workshops, Eastern Bengal Railway.

559 Paint mills and mixing machines for the Saidpur Loco Workshops, Eastern Bengal Railway.

560 Wet concrete mixers, ½ cubic yard capacity, for the Hydro-electric Branch, Public Works Department, Punjab.

561 Belt driven air compressor sets for the Quarries Division, Sukkur.

562 Pulleys, counter-shafting equipment and belting for Hydro-electric Branch, Public Works Department, Punjab.

APPENDIX X-A—*contd.*

S. R. No. [Subject.

563 Ventilated pipes and specials for tunnel.

564 Portable steam engine 19 B. H. P. for the Buildings and Roads Branch, Public Works Department, Punjab.

565 Machine shop, machine tools and accessories for the Kanchrapara Loco Workshops, Eastern Bengal Railway.

566 One floor operated 5 tons electric overhead travelling crane for the Kanchrapara Loco Workshops, Eastern Bengal Railway.

567 Castor and mustard seed oil extracting plant for the Central Jail, Lahore, Punjab.

568 Pole mounting transformer and electrical fittings and accessories for the Government High School, Peshawar.

569 Direct current punkha motor sets and controller panels for the Military Engineering Services, Mandalay.

570 Main switchboard for Government House, New Delhi.

571 Timber twin ferry boat for use on the river Sina for the Public Works Department, Sholapur, Bombay.

572 Bridges for Lloyd Barrage and Canals Construction, Sukkur.

573 Hot water heating installations for the British Indian Military Hospital, Quetta.

574 Portable petrol kerosene oil engine driven centrifugal pumping set for the Irrigation Branch, Public Works Department, North-West Frontier Province.

575 One ice-making plant 600 cwts. capacity for the Irrigation Branch, Public Works Department, Malakand, North-West Frontier Provinces.

576 Steel frame windows.

577 Gas engines producer gas plant and centrifugal pumps for Chingleput, Madras.

578 2′-0″ gauge rail and road bridge over Panjnad Weir.

579 Steelwork and roofing sheet for grain crushing plant for the Military Engineering Services, Peshawar.

580 Single phase out-door type lighting transformers and accessories for the Hydro-electric Branch, Public Works Department, Punjab.

581 Oil engine and centrifugal pump and accessories for Military Engineering Services, Fort Akalgarh, D. I. Khan.

582 Out-door type 250 K. V. A. transformer for the Thuji temporary power station for the Hydro-electric Branch, Public Works Department, Punjab.

583 Motor driven tunnel unwatering centrifugal pumping sets for the Hydro-electric Branch, Public Works Department, Punjab.

584 Steel pipe line, valve and accessories for temporary power plant at Thuji for the Hydro-electric Branch, Public Works Department, Punjab.

585 Cables, joint boxes, tri-furcating, bifurcating and Tee boxes for the Public Works Department, Delhi.

586 Stranded galvanized all steel overhead ground wire ⅜″ diameter for the Chennapatna electrification.

587 Boring tubes and fittings.

588 25 K. W. 420 volts, 3-phase, oil engine driven alternator sets complete with exciters, water cooling plant, compressor sets, main oil fuel storage tank, pipework, crane, switchboard and connecting cables and accessories for the Kalka power station, North Western Railway.

589 Two motor driven centrifugal sewage pumping sets for the Nigambodh pumping station, Public Works Department, New Delhi.

590 Machine shop, machine tools, and accessories for the Saidpur Loco Workshops, Eastern Bengal Railway.

591 Plant and equipment for the Government Institute of Dyeing and Calico Printing, Shahdara.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
592	Direct current punkha motor sets and controller panels for the Military Engineering Services, Kamptee.
593	Dragline excavators for the Chief Engineer, Irrigation Department, Damodar Canal Project.
594	One 12″ × 36″ precision grinding machine and accessories for the Royal Air Force Depot, Drigh Road, Karachi.
595	Steam winches for operating grabs in well curbs for the Public Works Department, Burma.
596	Lancashire boiler and boiler settings, and two 15 K. W. Steam-engine driven D. C. generator sets for the Government Opium Factory, Ghazipur.
597	Roof trusses and purlins.
598	Main shafting with collars, wall brackets, wall box, plummer Blocks, Camel hair belting, fast and loose main pulleys, and belt striking gear for the Burewala workshop, Public Works Department, Punjab.
599	One hand operated overhead travelling crane.
600	Machine-shop and joiners-shop machine tools and accessories for Rawalpindi Arsenal.
601	Belt-driven vertical boring machine for joiners shop for Ferozepore Arsenal.
602	Locomotive crane, 5′-6″ gauge.
603	Khaki drill shirts and khaki cotton canvas tunics.
604	Permanent-way materials for the Mysore Railways.
605	Kite motion pumps for the Hassan Division, Mysore State Railways.
606	Oil engine driven direct current generating plant for the Military Engineering Services, Murree Hospital.
607	4 cubic yard tip trucks and 7½ tons platform wagons for the Hydro-electric Branch, Public Works Department, Punjab.
608	Additional oil engine driven direct current generating set for the Military Engineering Services, Kamptee.
610	Oil engine driven centrifugal pumping sets for the Military Engineering Services, Chaklala.
611	Internal combustion Locomotives 2′-0″ gauge for the Irrigation Department, Bengal.
612	Exhaust steam feed water heater for the cantonment power station, Ambala, Military Engineering Services.
613	Electric, three motor type overhead hoisting, traversing and travelling 5 tons crane and accessories for the Chief Forest Officer, Andaman Isles.
614	One 20 K. W. steam engine generator set and control panel and one 20 K. W. belt-driven generator and control panel for the Chief Forest Officer, Andaman Isles.
615	Electrically operated self-propelling loco cranes for Lloyd Barrage Works.
616	Portable petrol engine centrifugal pumping sets, suction and delivery piping and accessories for the Irrigation Department, Bengal.
617	Motor driven air compressor equipment.
619	Gur and Mohwa seed distilling plant for the Jaipur State distillery, Jaipur.
620	Two portable steam engines, 19 B. H. P., and mortar grinding mills for the Irrigation Department, Bengal.
621	Half cubic yard capacity A. C. motor driven portable wet concrete mixers for the Lloyd Barrage Circle, Sukkur.
622	Road rollers for bullock draught for the Punjab Public Works Department.
623	One 10-ton capacity overhead hand-operated travelling crane for the Military Engineering Services, Campbellpore.
624	Steel rolling shutters for Garages and Coach-houses for residential quarters, Government House, New Delhi.

APPENDIX X-A—*contd.*

S. R. No.	Subject.
625	Grooved victaulic-jointed piping 4" bore and victaulic joints for the Reserve Engineer Stores, Lahore.
626	Oil engine driven D. C. generating set for Royal Air Force, Thal.
627	Steel road bridges for Lloyd Barrage and Canals Construction Project, Sukkur.
628	Steelwork and roofing for covered stands for mules, Military Engineering Services.
629	Steam engine and generator for Assistant Engineer, Port Blair.
630	Textile weighing scales and cloth testing machine.
631	Permanent-way material for the Mysore State Railways.
632	Balancer set D. C. for Chief Engineer, Northern Command.
633	One hand operated overhead travelling crane.
634	Shouldaries.
635	Bridge girders :— 4 spans of 40 ft. clear 16 „ 20 „ 2 „ 12 „ 9 „ 6 „ } for Assam Bengal Railway.
636	Oil engine driven centrifugal pumping sets for the Public Works Department, Kandhkot, Jacobabad.
637	One hand operated overhead hoist travelling on beam fixed in walls.
638	Galvanized steel tanks.
639	Weigh bridges.
640	Electrical equipment for the conversion of hand operated permanent-way crane into electric drive for the Lloyd Barrage, Sukkur.
641	Fire-bricks, fire bars, etc., for the Punjab Public Works Department, Chakawali.
642	Pressed steel tank with staging for the Military Engineering Services, Jullundur Cantonment.
643	Water boiler and circulating tank for the Military Engineering Services, Murree.
644	Target apparatus.
645	Electrically driven centrifugal pumping equipment for Military Engineering Services, Jullundur.
646	Cables and steelwork for suspension bridge.
647	One cubic yard capacity oil engine driven concrete mixers for Irrigation Department, Bengal.
648	Disintegrators, shafting, pulleys and accessories for the Irrigation Department, Panjnad canal works, Punjab.
649	Steel arch centres for the Lloyd Barrage Works, Sukkur.
650	One 10-ton electric overhead travelling crane.
651	Cast iron pipes, specials, etc., for Simla Municipal Committee.
652	Steel bridges.
653	Electric machines for the electrical laboratory of the College of Engineering, Guindy, Madras.
654	Sea-going steam launch for Marine Department, Port Blair.
655	Relief valves on the Quetta water supply main for Headquarters, Western Command, Quetta.
656	Alternating current punkha motors, reduction gears and control panels for the Military Engineering Services, Secunderabad.

APPENDIX X-A—*concld.*

S. R. No.	Subject.
657	Recording water meter for Sub-Divisional Officer, Padegaon Sub-Division, Lonand, Madras and Southern Mahratta Railway.
658	Oil engine locomotives, 2 feet gauge, for Lloyd Barrage Works, Sukkur.
659	Outboard type motors, etc., for Lloyd Barrage Works, Sukkur.
660	Fire-bricks for the Marine Stores Officer, R. I. M. Dockyard, Bombay.
661	Boiler tubes for Lloyd Barrage Works, Sukkur.
662	Motor lorry for Lloyd Barrage and Canals Construction.
663	Bridge girders, metre gauge, for Assam Bengal Railway.

APPENDIX XI.

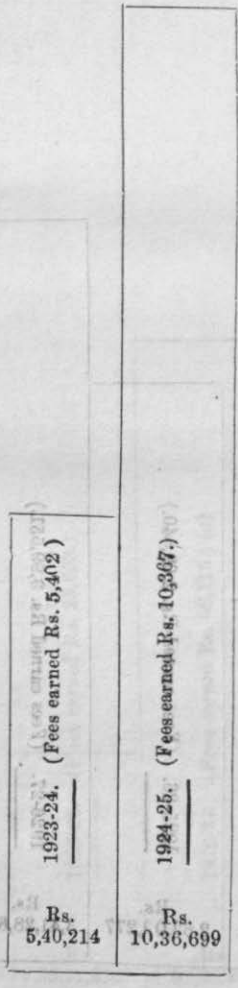
(*Vide* para. 33 of the Report).

Work done by the Inspection Branch.

(*i*)—HEADQUARTERS.

Note—(i) All inspection work was accounted for through the Provincial Inspectorates from 1st April 1925; hence no figures are given for the years 1925-26, 1926-27 and 1927-28.

(ii) The diagrams represent fees earned and not those actually adjusted during the year.

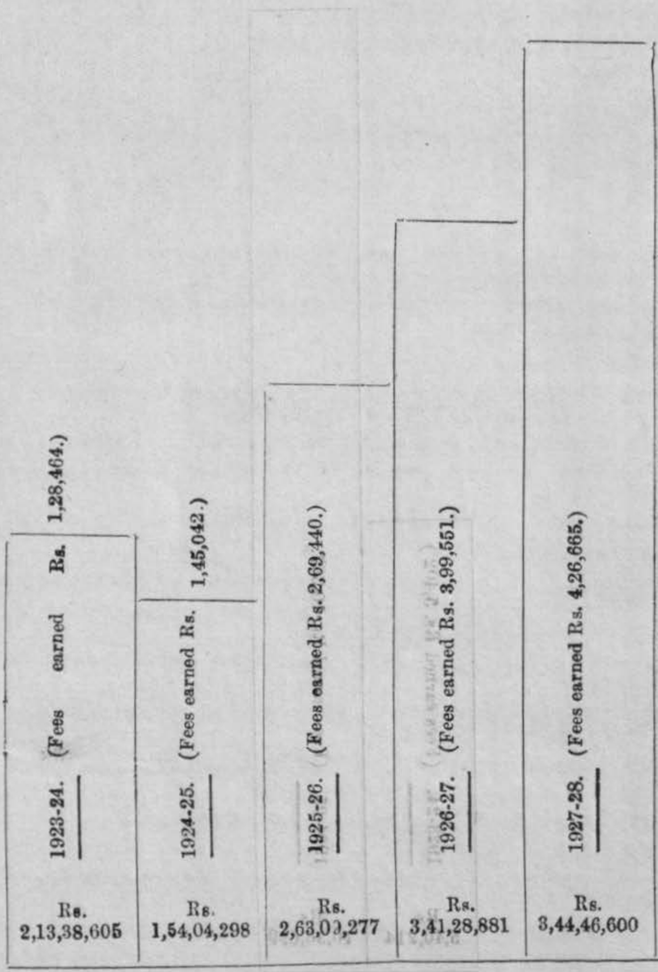


Value of work inspected.

XI (*ii*).—Calcutta Inspection Circle.

(*Vide* para. 33 of the Report).

Note.—The diagrams represent fees earned and not those actually adjusted during the year.



Value of work inspected.

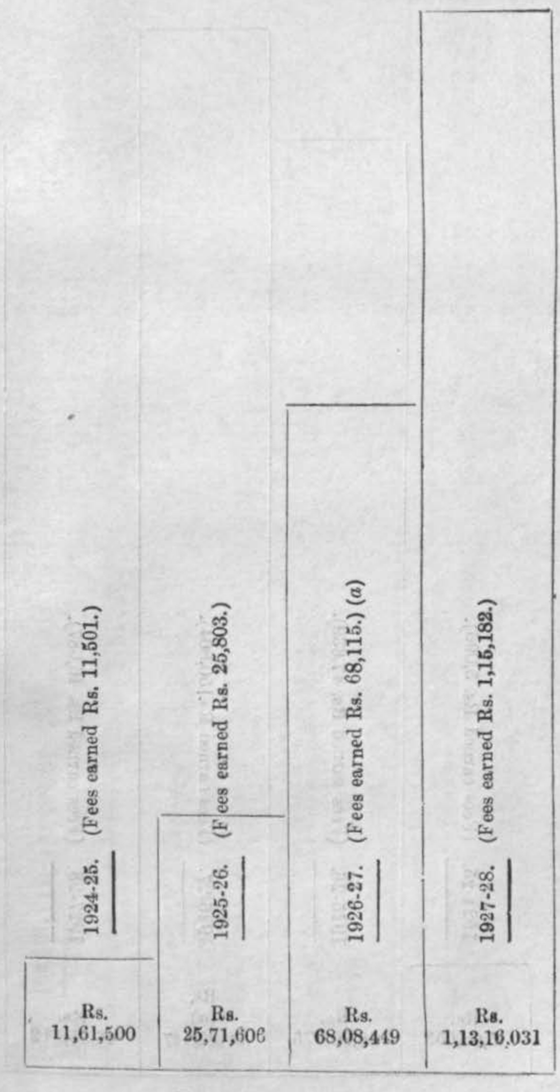
XI (*iii*)—Bombay Inspection Circle.

(*Opened in July 1924.*)

(*Vide* para. 33 of the Report.)

(*a*) The figures shown in the previous report have been revised on account of adjustments subsequently made.

Note.—The diagrams represent fees earned and not those actually adjusted during the year.



Value of work inspected.

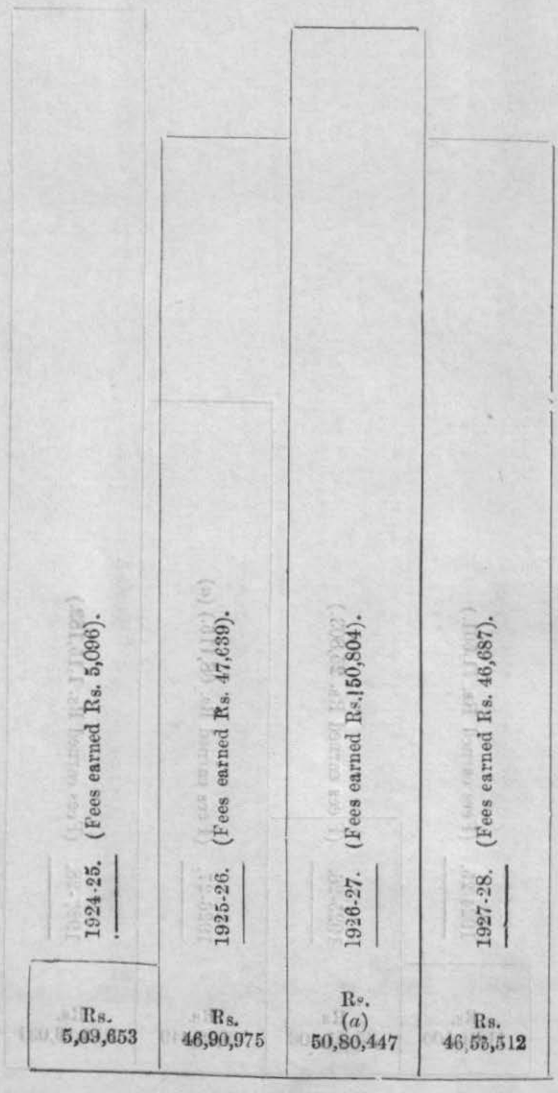
XI (*iv*)—CAWNPORE INSPECTION CIRCLE.

(*Opened in September 1924.*)

(*Vide* para. 33 of the Report.)

(*a*) The figures shewn in the previous report have been revised on account of adjustments subsequently made.

Note.—The diagrams represent fees earned, and not those actually adjusted during the year.



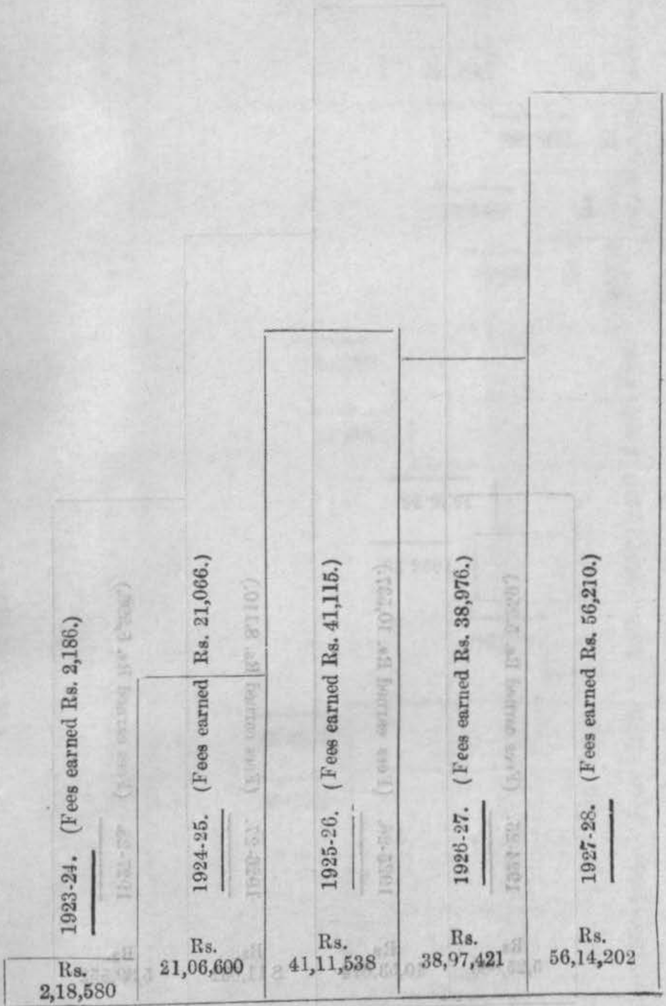
Value of work inspected.

XI (v)—Karachi Inspection Agency.

(*Opened in January 1924.*)

(*Vide* para. 33 of the Report.)

Note.—The diagrams represent fees earned and not those actually adjusted during the year.



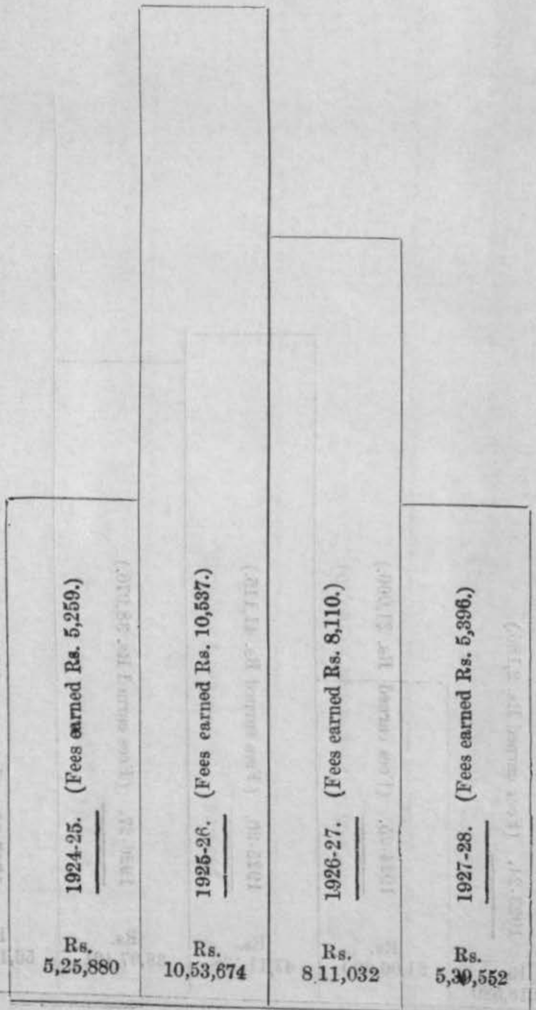
Value of work inspected.

XI (*vi*)—Madras Inspection Branch.

(*Opened in July 1924.*)

(*Vide* para. 33 of the Report.)

Note.—The diagrams represent fees earned and not those actually adjusted during the year.

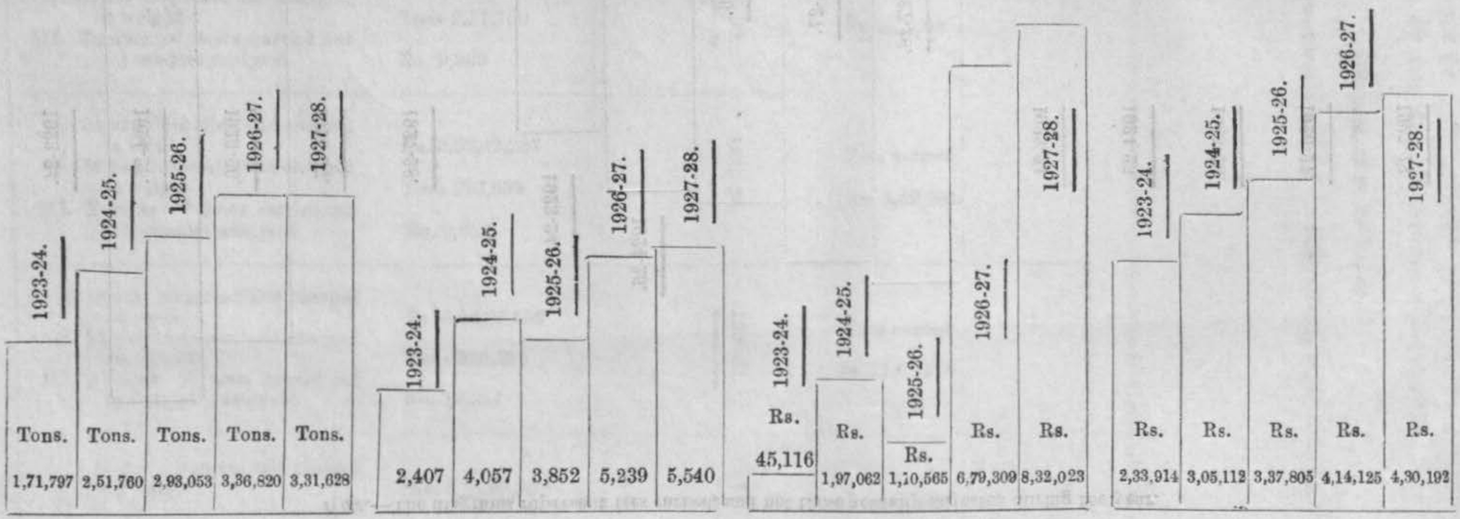


Value of work inspected.

XI (*vii*)—METALLURGICAL INSPECTORATE, JAMSHEDPUR.

(*Vide* paras. 33 and 42 of the Report.)

Note.—The diagrams represent fees earned, and not those actually adjusted during the year.



Total quantity of material inspected and charged on weight.

Total number of tests carried out and samples analysed.

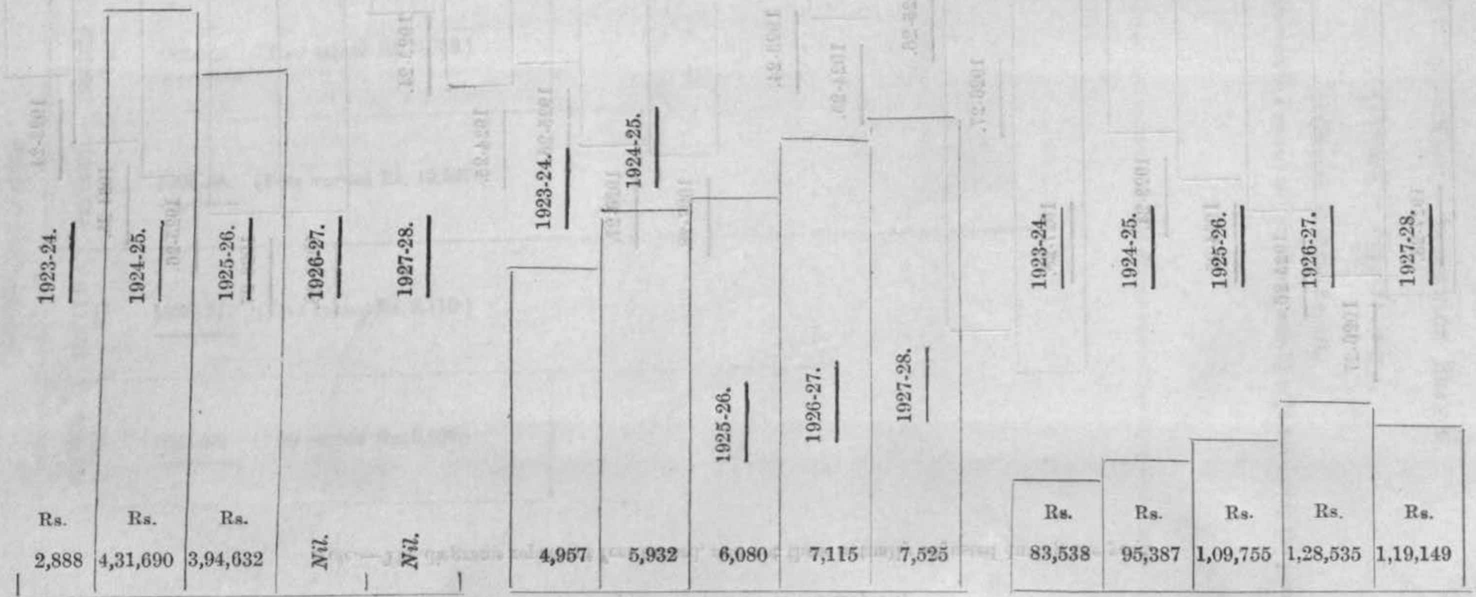
Total quantity of stores inspected and charged on value.

Total amount of fees earned.

XI (*viii*)—Government Test House, Alipore, Calcutta.

(*Vide* paras. 33 and 49 of the Report.)

Note.—The diagrams represent fees earned, and not those actually adjusted during the year.



Total value of stores inspected.

Total number of tests carried out.

Total amount of fees earned.

XI (*ix*)—Abstract of Total Work done in the Inspection Branch of the Indian Stores Department.

(*Vide* para. 33 of the Report.)

Note.—The diagrams represent fees earned and not those actually adjusted during the year.

Year	Item	Quantity	Fees earned
1923-24.	I. Stores inspected and charged on value	Rs. 2,21,45,403	Rs. 4,53,504.
	II. Stores inspected and charged on weight	Tons 171,797	
	III. Number of tests carried out and samples analysed	No. 7,364	
1924-25.	I. Stores inspected and charged on value	Rs. 2,13,73,382	Rs. 5,98,830.
	II. Stores inspected and charged on weight	Tons 2,51,760	
	III. Number of tests carried out and samples analysed	No. 9,989	
1925-26.	I. Stores inspected and charged on value	Rs. 3,92,42,267	Rs. 8,42,094.
	II. Stores inspected and charged on weight	Tons 293,053	
	III. Number of tests carried out and samples analysed	No. 9,952	
1926-27.	I. Stores inspected and charged on value	Rs. 5,14,05,539	Rs. 11,08,216.
	II. Stores inspected and charged on weight	Tons 336,820	
	III. Number of tests carried out and samples analysed	No. 12,354	
1927-28.	I. Stores inspected and charged on value	Rs. 5,74,03,920	Rs. 11,99,481.
	II. Stores inspected and charged on weight	Tons 331,628	
	III. Number of tests carried out and samples analysed	No. 13,065	

APPENDIX XII.

Statement showing inspection work carried out for various authorities.

(*Vide* paras. 13 and 33 of the Report.)

Material charged on weight.

Authorities on whose behalf stores were inspected.	METALLURGICAL INSPECTORATE, JAMSHEDPUR 1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
—	Tons.	Tons.	Tons.	Tons.	Tons.
I. Inspection of Stores against orders placed by the Indian Stores Department.	..	..	..	..	..
II. Inspection of Stores against orders placed by other authorities.					
1. Central Government Departments.	126	681	1,274	1,124	1,841
2. State Worked Railways . .	35,305	21,942	49,307	111,568	130,343
3. Company Worked Railways .	46,114	91,950	70,187	48,592	59,899
4. Indan State Worked Railways	177	93	1,516	..	..
5. Provincial Governments .	..	..	..	..	..
6. Public Bodies . . .	..	..	..	..	..
7. Private concerns and Indian States.	90,075	137,094	170,769	175,536	139,545
Total .	171,797	251,760	293,053	336,820	331,628

Material charged on value.

Authorities on whose behalf stores were inspected.	CALCUTTA (including Test House, Alipore, and Metallurgical Inspector, Jamshedpur). 1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
—	Rs.	Rs.	Rs.	Rs.	Rs.
I. Inspection of Stores against orders placed by the Indian Stores Department.	11,74,741	41,36,425	52,22,592	79,21,683	73,84,052
II. Inspection of Stores against orders placed by other authorities.					
1. Central Government Departments.	24,433	2,12,228	1,65,275	..	6,32,001
2. State Worked Railways . .	1,40,01,618	67,96,874	1,56,29,414	1,87,23,981	1,97,32,758
3. Company Worked Railways .	53,43,253	37,51,231	54,19,087	80,80,863	62,91,320
4. Indan State Worked Railways	..	1,49,152	1,84,729	34,660	92,725
5. Provincial Governments .	5,68,101	6,90,927	89,125	8,192	5,719
6. Public Bodies . . .	2,74,288	2,32,106	93,184	..	5,94,347
7. Private concerns and Indian States.	175	64,107	11,068	38,811	5,45,701
Total .	2,13,86,609	1,60,33,050	2,68,14,474	3,48,08,190	3,52,78,623
Includes G. T. H. = 2,888		4,31,690	3,94,632	..	..
„ M. I. = 45,116		1,97,062	1,10,565	6,79,309	8,32,028

Authorities on whose behalf stores were inspected.	BOMBAY. 1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
—	Rs.	Rs.	Rs.	Rs.	Rs.
I. Inspection of Stores against orders placed by the Indian Stores Department.	..	11,17,422	23,71,968	38,59,196	62,87,992
II. Inspection of Stores against orders placed by other authorities.					
1. Central Government Departments.	..	..	..	..	..
2. State Worked Railways . .	..	44,078	1,23,343	10,72,450	33,86,663
3. Company Worked Railways .	..	..	58,353	17,23,620	15,58,297
4. Indan State Worked Railways	..	..	11,062	1,11,666	74,745
5. Provincial Governments .	..	..	3,880	41,517	8,334
6. Public Bodies . . .	..	..	3,000	..	..
7. Private concerns and Indian States.	..	..	..	..	..
Total .	..	11,61,500	25,71,606	68,08,449	1,13,16,031

Authorities on whose behalf stores were inspected.	CAWNPORE (including Headquarters). 1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
—	Rs.	Rs.	Rs.	Rs.	Rs.
I. Inspection of Stores against orders placed by the Indian Stores Department.	5,40,214	15,34,920	45,04,800	43,15,817	45,64,909
II. Inspection of Stores against orders placed by other authorities.					
1. Central Government Departments.	..	7,512	..	..	..
2. State Worked Railways . .	..	3,920	1,86,175	7,60,660	90,603
3. Company Worked Railways .	..	..	..	..	..
4. Indan State Worked Railways	..	..	..	..	..
5. Provincial Governments .	..	..	..	3,970	..
6. Public Bodies . . .	..	..	..	..	..
7. Private concerns and Indian States.	..	..	..	..	..
Total .	5,40,214	15,46,352	46,90,975	50,80,447	46,55,512
Includes Head Qrs. =	5,40,214	10,36,699			

Authorities on whose behalf stores were inspected.	KARACHI. 1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
—	Rs.	Rs.	Rs.	Rs.	Rs.
I. Inspection of Stores against orders placed by the Indian Stores Department.	2,18,580	20,48,800	40,28,062	37,29,682	48,94,553
II. Inspection of Stores against orders placed by other authorities.					
1. Central Government Departments.	..	..	..	..	..
2. State Worked Railways . .	..	57,800	1,476	1,12,419	4,75,386
3. Company Worked Railways .	..	..	..	..	..
4. Indan State Worked Railways	..	..	..	..	..
5. Provincial Governments .	..	..	82,000	41,220	1,05,342
6. Public Bodies . . .	..	..	..	..	142
7. Private concerns and Indian States.	..	..	..	14,100	1,38,779
Total .	2,18,580	21,06,600	41,11,538	38,97,421	56,14,202

Authorities on whose behalf stores were inspected.	MADRAS. 1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
—	Rs.	Rs.	Rs.	Rs.	Rs.
I. Inspection of Stores against orders placed by the Indian Stores Department.	..	5,25,880	10,53,674	8,11,032	5,39,552
II. Inspection of Stores against orders placed by other authorities.					
1. Central Government Departments.	..	..	..	..	..
2. State Worked Railways . .	..	..	..	..	..
3. Company Worked Railways .	..	..	..	..	..
4. Indan State Worked Railways	..	..	..	..	..
5. Provincial Governments .	..	..	..	..	..
6. Public Bodies . . .	..	..	..	..	..
7. Private concerns and Indian States.	..	..	..	..	..
Total .	..	5,25,880	10,53,674	8,11,032	5,39,552

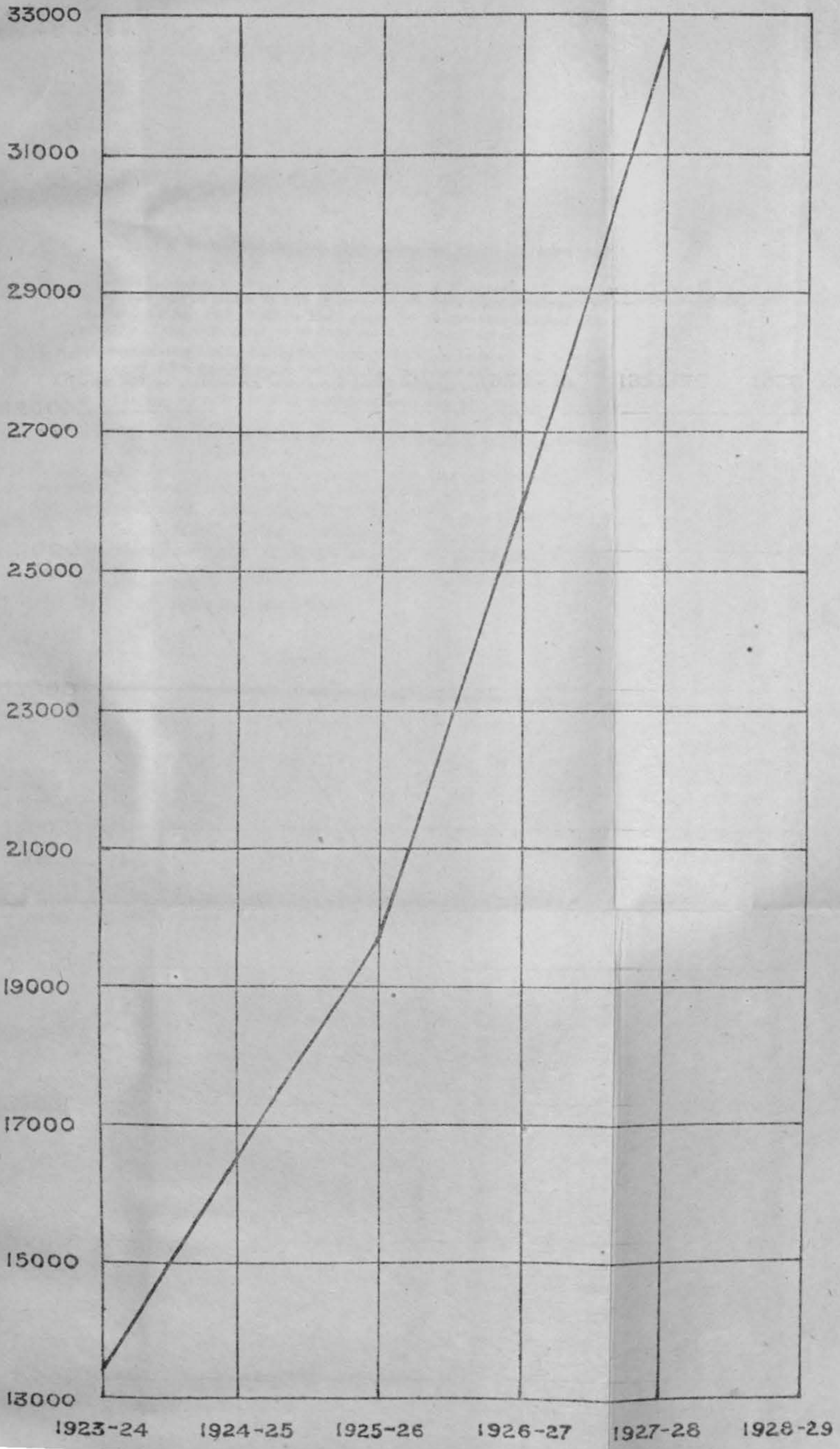
Authorities on whose behalf stores were inspected.	TOTAL. 1923-24.	1924-25.	1925-26.	1926-27.	1927-28.
—	Rs.	Rs.	Rs.	Rs.	Rs.
I. Inspection of Stores against orders placed by the Indian Stores Department.	19,33,535	93,63,447	1,71,81,096	2,06,37,410	2,36,71,058
II. Inspection of Stores against orders placed by other authorities.					
1. Central Government Departments.	24,433	2,19,740	1,65,275	..	6,32,001
2. State Worked Railways . .	1,40,01,618	69,02,672	1,59,40,408	2,06,69,510	2,36,85,410
3. Company Worked Railways .	53,43,253	37,51,231	54,77,440	98,04,483	78,49,617
4. Indan State Worked Railways	..	1,49,152	1,95,791	1,46,326	1,67,470
5. Provincial Governments .	5,68,101	6,90,927	1,75,005	94,899	1,19,395
6. Public Bodies . . .	2,74,288	2,32,106	96,184	..	5,94,489
7. Private concerns and Indian States.	175	64,107	11,068	52,911	6,84,480
Total .	2,21,45,403	2,13,73,382	3,92,42,267	5,14,05,539	5,74,03,920

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APPENDIX XIII

GRAPH SHOWING THE NUMBER OF ESTIMATIONS (DAILY STEEL ANALYSIS) CARRIED OUT AT THE METALLURGICAL INSPECTORATE DURING THE YEARS 1923-24 TO 1927-28

(Vide paragragh 45 of the Report)



APPENDIX XIV.

Apparatus installed at the Metallurgical Inspectorate Jamshedpur.

(*Vide* para. 48 of the Report.)

Mechanical Laboratory.

The machine shop is equipped with machinery and tools by means of which test pieces and experimental samples of any desired shape can be prepared. The Metallurgical Inspector is in a position to undertake the testing and investigation of any metallic materials of whatever size which may be submitted to him.

The following testing-machines are available for mechanical tests :—

(1) A 50-ton vertical testing-machine of single-lever type, for tensile, compression, bending and shear tests.

(2) A 10,000-lb. vertical testing-machine for tensile tests on wires and on other material of small cross-section.

(3) A torsion testing-machine for wire.

(4) Hardness testing-machines for application of the Brinell hardness test—

(*a*) One machine has a useful range of load of 0 to 4,000 kilogrammes.

(*b*) Another machine has a useful range of load of 5 to 50 kilogrammes. This is valuable in the case of small samples and thin materials such as strips or sheets, for detecting variations of hardness, &c.

(5) An impact testing-machine of the Izod single-blow type, with a maximum striking energy of 120 foot-pounds.

(6) A mirror-extensometer, by means of which the extension of a tensile test-piece, while under load, can be measured with an accuracy of about 1/1,25,000th inch. This enables the elastic limit, which for many purposes is the most important mechanical property of a ductile metal, to be determined with great accuracy.

(7) A 50-ton calibrating box for testing the accuracy of testing-machines up to loads of 50 tons in either tension or compression. By this means any deterioration of the main testing-machine can be detected and corrections made for the error ; and as the box is portable, different testing-machines can be compared with one another.

(8) A transverse testing-machine for measuring the breaking load and deflection of cast-iron bars under transverse load.

In addition, arrangements can usually be made with the Tata Iron and Steel Company, Ltd., or the Jamshedpur Technical Institute, for the use of the following machines :—

(9) A falling weight test machine capable of delivering blows up to 35 foot-tons.

(10) A 100-ton tensile and compression testing-machine (horizontal).

(11) Impact testing-machines of the Charpy single blow type (chiefly used on the Continent of Europe) with striking energies equivalent to about 220 and 1,450 foot-pounds respectively.

(12) A Sankey alternating bend test machine.

Miscellaneous.

1. Potentiometer, Double Switch Bridge, Resistances standardised by the National Physical Laboratory and Standard Weston Cell by means of which resistances, including the resistance of high conductivity of copper wire and cables, can be accurately measured and voltmeters, ammeters and standard resistances can be accurately calibrated.

2. A large latest type Reichert Metallographic Microscope with photo camera for examining and photographing the structure of metals. This apparatus, equipped with a series of objectives having focal lengths ranging from 100 mm. micropolar to 2 mm. apochromat, is equally suited for low and high power microphotography.

3. A Metallographic microscope for routine work with objectives having focal lengths ranging from 2" to 4 mm.

4. A travelling microscope for the accurate measurement of small diameters.

APPENDIX XIV—*contd.*

5. Two gas-fired furnaces for experimental heat-treatment of metals—one being provided with a device for pre-heated air supply so that high temperatures can be obtained.

6. A platinum resistance thermometer with Whipple Indicator made by the Cambridge and Paul Instrument Company, suitable for measuring temperatures up to 1,200° C. and for calibrating pyrometers of other types.

7. Two Pyrometers for measuring temperatures below 1,400° C.

8. Apparatus with Platinum Electrodes for electrolytic analysis with rotating electrodes.

9. A photographic camera with portable stand and sliding bench.

APPENDIX XV.

The Government Test House, Calcutta, is equipped with the apparatus mentioned below by means of which tests can be carried out for Government and public Departments and private bodies at a small charge. The additions made during the year are shown in italics.

(*Vide* para. 58 of the Report.)

I. PHYSICAL SECTION.

Testing machines and apparatus.

1.—*Engineering sub-section.*

1. One 100-ton Buckton horizontal testing machine, hydraulically controlled, for tensile, compression and transverse bend testing. This machine takes test-pieces up to a maximum size of 10 feet. It is suitable for steel and metal bars, steel wire ropes, chains, railway couplings, stone and concrete blocks, bricks, etc.

2. One 10-ton Avery testing machine for tensile, compression and transverse bend testing.

3. One 10,000 lbs. Avery universal testing machine for tensile, compression, transverse and torsion testing.

4. One Ewing extensometer complete with marking off jig for test-pieces.

5. One 12″ Newall measuring machine.

6. One 120 foot-lbs. Avery Izod type impact testing machine for carrying out notched-bar tests on metals.

7. One Buckton double-sided cold and temper bend testing machine.

8. One Avery fatigue testing machine. This machine is of the rotating bar type in which the test specimens are subjected to a uniform bending moment while revolving about their own axes.

9. One Brinell hardness testing machine for determining the hardness of all metals and alloys.

10. One 5 foot-ton Avery impact testing machine for carrying out impact tests on railway couplings and draw-gears.

11. One Thurston oil testing machine for testing oils under practical conditions of use.

12. One hydraulic testing machine for testing stoneware and other pipes up to 18″ in diameter and 3′-0″ in length.

13. One Bailey hydraulic testing machine for carrying out porosity and pressure tests on cocks, valves, etc.

14. One Brotherhood pressure gauge testing apparatus, 0-6,000 lbs. per sq, inch.

15. Budenberg gauge test sets, one suitable for pressures of 0-2,000 lbs. per sq. inch and another for pressures of 0-5 tons per sq. inch.

16. One "Compactum" hydraulic pressure test-pump, 1,500 lbs. per sq. inch capacity, for general hydraulic pressure tests.

17. One Brotherhood vacuum gauge testing apparatus.

18. Plant and apparatus for testing vacuum brake rubber fittings.

19. One vacuum gauge testing apparatus with mercury columns.

20. One 20-ton dynamometer (Salters).

21. One 0-50 ton Amsler standardizing box for calibrating testing machines.

22. One Avery 10 cwt. platform weighing machine.

23. One microscope.

24. One Vickers patent diamond hardness testing machine.

APPENDIX XV—*contd.*

2. Machine tools.

1. One 6″ centres S. S. and S. C. heavy duty Buckton lathe.

2 One 4″ centres S. S. and S. C. Holbrook lathe.

3. One Buckton test-piece preparing machine for shaping flat test-pieces for the determination of tensile strength.

4. One Butler shaping and slotting machine.

5. One machine for polishing metal specimens for micro-examination.

6. One Smith and Coventry sensitive drilling machine.

7. One band saw.

8. One power hack saw.

9. One Emery grinder.

10. One light motor grinder.

11. One grindstone, treadle driven.

12. One end-runner paint mill.

13. One cone paint mill.

3. Cement testing sub-section.

1. One Adie tensile testing machine.

2. One Smith Edward testing machine.

3. Vicat needle setting time testing sets.

4. Le Chatelier soundness testing sets.

5. One Ro-tap sieving machine.

6. Ice-chest for taking setting times under various temperature conditions.

7. One Thermograph.

8. Dry and wet bulb thermometer.

9. One setting time clock.

10. Maturing tanks, damp boxes, moulds, scales, balances, etc.

4. Road metals testing sub-section.

1. One Deval type 4-cylinder attrition testing machine.

2. One ball mill.

3. One Dorry type abrasion tester.

5. Textile testing sub-section.

1. One Goodbrand-lea tensile testing machine, 0-500 lbs.

2. One Goodbrand yarn testing machine, 0-5 lbs.

3. One Dronsfield wrap reel.

4. One 12″ Goodbrand twist tester.

5. One Goodbrand fabric 0-1,000 lbs. testing machine.

6. One Avery cloth fabric testing machine, 0-1,200 lbs.

7. One Casartelli microscope cloth counting glass.

8. One Goodbrand conditioning apparatus with balance and wire cage, etc.

9. One chemical balance.

6. Electrical testing sub-section.

1. One Nalder Bros. and Thomson ohmmeter.

2. One Elliot Brothers Wheatstone bridge with 6-volt portable battery.

3. One complete set of Pritchett and Gold and E. P. S. Co., Ltd., storage battery, 250 volts, consisting of 135,S5 type cells, capacity 80 ampere-hours with plug board, switch board and instruments.

APPENDIX XV—*contd.*

4. One Elliot Brothers D. C. ammeter with four range 1·5-600 amperes.
5. One Elliot Brothers A. C. ammeter 600 amperes with single phase transformer.
6. One Weston A. C. double range ammeter 5 and 10 amperes.
7. One Weston A. C. double range ammeter 1 and 2 amperes.
8. One Elliot Bros. A. C. and D. C. double range voltmeter 300 and 600 volts.
9. One Elliot Bros. D. C. voltmeter 600 volts.
10. One Weston accumulator testing voltmeter.
11. One Weston three phase wattmeter, 1·5 kilowatts.
12. One Weston single phase double range wattmeter 150 and 300 watts.
13. Two Weston current transformers (open centre 1200-5 amperes).
14. Two Weston potential transformers (6,600 or 3,300-110 volts).
15. One portable frequency meter.
16. One Everett-Edgcumbe standard photometer bench.
17. One 6″ Lawrence & Mayo anemometer.
18. *Potentiometer complete with accessories.*
19. *Kelvin double bridge.*

7. Miscellaneous.

1. One copper oven for determining the moisture contents of bricks, concrete blocks, etc.
2. One portable forge.
3. Anvils, vices, etc.

II.—CHEMICAL SECTION.

8. General laboratory.

1. Two motor driven gas compressors.
2. One motor driven water pump set.
3. One carbon disulphide distillation apparatus.
4. One Cambridge and Paul thermo-couple type pyrometer with three spare tubes containing the couple.
5. One Cambridge and Paul optical pyrometer, polarising type.
6. Two muffle furnaces.
7. Two combustion furnaces for organic analyses.
8. One centrifugal machine, holding 4 tubes of 100 c. c. each.
9. Three bomb calorimeter sets for determination of the calorific value of coal and other fuels.
10. One electric furnace by Brady and Martin, special type for determining the amount of volatile matter evolved from coal at different temperatures.
11. One Electrical resistance thermometer.
12. One Hutchinson tar tester for determination of viscosity of coal-tar.
13. Accessories for Fleming's carbon combustion apparatus (used in steel analysis) consisting of phosphoric anhydride jar, zinc tower, mercury gauge, mercury valve, gas washing bottles, reducing valve, silica tube, etc.
14. One B. T. L. penetrometer.
15. One melting point determination apparatus, Ring and Ball method.
16. One Nalder Brothers volt-ammeter testing set (with instrument ranges up to 600 volts and 660 amperes).
17. One G. E. C. ammeter 30 amperes.
18. Two six-volt batteries and one twelve-volt battery.
19. Ten chemical balances.

APPENDIX XV—*contd.*

20. *Two chemical balances.*
21. Two rough balances.
22. One Westphal balance.
23. One microscope
24. Four ovens.
25. Six water baths.
26. One vacuum pump.
27. One combined still and steam oven set.
28. One still (for distilled water).
29. One streamline filter.
30. One sandbath with burners.
31. *Apparatus for determining the loss on heating of bituminous materials.*
32. *Apparatus for the determination of the ductility of bituminous materials.*

9. Oil testing sub-section.

1. One Zeiss Butyro-Refractometer.
2. One Herschel emulsifier, motor driven.
3. One Dubesq calorimeter.
4. One Deely friction machine for determining the co-efficient of static friction between lubricated surfaces.
5. Eight viscometers, Redwood's ordinary pattern.
6. One viscometer Redwood's electrically heated.
7. One viscometer, Redwood's admiralty pattern, for determining the viscosity of oil fuels.
8. Four Pensky-Martens closed flash point apparatus (high flash).
9. One Pensky-Martens closed flash point apparatus.
10. Two Abel-Pensky flash point apparatus (low flash).
11. One Abel's flash point apparatus (low flash).
12. One Archbutt vaporimeter for determining the volatility of oils used for lubricating steam engine cylinders.
13. Three Conradson carbon residue apparatus.
14. One cloud and pour test apparatus capable of holding six test-jars.
15. Two cloud and pour test apparatus capable of holding one test-jar only.
16. One standard distillation apparatus with metal condenser for kerosene.
17. One distillation apparatus for petrol (Dunston and Kewley).
18. One standard distillation apparatus with screen, etc., for petrol, conforming to the standard laid down by the I.P.T.
19. One apparatus for estimation of total sulphur in gasolene as adopted by the I.P.T.
20. One Lovibond tintometer.
21. Six Hinks' single wick table lamps for kerosene burning tests.
22. Four chemical balances.
23. Two water-baths.
24. One still.
25. One geyser.
26. One hot air-oven.
27. One apparatus, Dean and Stark's, for determination of water in fuel oils.
28. One apparatus for determining melting point of paraffin wax.
29. One circular copper water bath with burners.
30. *Michie sludge test apparatus for transformer oils.*

APPENDIX XVI.

The Government Test House, Bombay, is equipped with the apparatus mentioned below by means of which tests can be carried out for Government and public Departments and private bodies at a small charge. The additions made during the year are shown in italics.

(*Vide* para 37 of the Report.)

I.—PHYSICAL SECTION.

TESTING MACHINES AND APPARATUS.

1. *Engineering sub-section.*

1. One Jackman type Brinell Hardness testing machine.

2. One Budenberg Combined dead weight tester and screw press figure 242, Sec. 3 of Catalogue of Budenberg Gauge Co. Broadheath, Manchester.

3. One Vacuum Gauge Tester with mercurial column.

4. One Avery's wire twisting machine.

5. One Boiler Test Pump.

2. *Cement testing sub-section.*

1. One damp box teak 24" × 24" × 9" felt covered with two perforated shelves.

2. Three teak zinc lined, maturing tanks.

3. Three aerating boxes, zinc lined.

4. One Admiralty marine clock.

5. One chemical balance for fineness tests.

6. One tensile briquette testing machine.

7. Two Vicat setting time testing apparatus dash-pot model.

8. One Le Chatelier copper boiler with corrugated tray to hold 12 Le Chatelier moulds.

9. One sieve 76 mesh with receiver and cover brass.

10. One sieve 180 mesh with receiver and cover brass.

11. Sixty tensile briquette gun-metal moulds for 1" briquettes with thumb screws and steel base-plates.

12. Six Le Chatelier brass moulds with plates and weights.

13. Six Vicat moulds with base-plates.

14. Two Standard Steel spatulas.

15. Four Standard gauging trowels.

16. One balance with brass scoop and pan to weigh up to 4 lbs.

17. Six glass burettes.

3. *Textile testing sub-section.*

1. One Goodbrand & Co.'s Lea scales complete with one set of weights.

2. One Goodbrand & Co.'s yarn assorting balance type H.

3. One Goodbrand & Co.'s yarn twist tester No. 2.

4. One Dronsfield wrap reel No. 70.

5. One Avery new design yarn scale, fitted with chart, automatic including underload and overload.

6. One yarn Lea tester No. 12 to test up to 300 lbs. complete with motor.

7. One Goodbrand's yarn examining machine No. 3.

8. One Avery counter scale No. 502, 14 lbs. complete with set of weights.

APPENDIX XVI—*contd.*

9. One set of Avery's grain weights 240 grains to ½ grain.

10. One Umbrella Hankstand.

11. One testing frame for paulins.

12. One No. 118 Avery counter platform weigher.

13. One Goodbrand's yarn and cloth quadrant D type.

14. Goodbrand's patent cloth testing machine fitted with tension motion and motor for driving.

15. One Goodbrand's patent single thread tester with adjustable grip, etc.

16. One Knowle's patent yarn balance to weigh 4s-40s.

17. One Hank Stand.

18. One yarn examining machine No. 1 and 12 extra card boards.

19. One Goodbrand's Mason's Hygrometer.

20. One Hygrograph.

21. One conditioning oven with weight box 1 gram to 500 grams.

22. One Goodbrand & Co.'s yarn stretch tester.

4. Electrical testing sub-section.

1. One combined Elliot moving coil type century testing set 5 range portable type, consisting of voltmeter ammeter and suitable shunt to read up to 600 amperes in current side.

2. One combined Elliot moving coil A. C. Dynamo-meter type together with a wattmeter in the same case.

3. One Bridge Megger testing set, 1,000 volts, complete with Resistance box.

4. One Post Office type Wheatstone Bridge.

II.—CHEMICAL SECTION.

5. General Laboratory.

1. One Microscope by Swift, with electric light arrangement and battery.

2. One Chemical analytical balance sensitive to 1 mgm. with 1 set of weights from ·1 gram. to 500 grams.

3. One set of six Twaddles Hydrometers.

4. One Stage Micrometer.

5. One copper boiling box.

6. Porcelain dye pots.

7. One Holophane Daylight unit No. 10.

8. One Fadeometer.

9. One Lovibond's tintometer with complete set of standard glasses.

10. One washerman's iron with electrical heating.

11. One electric hot plate.

12. One water bath.

APPENDIX XVII.

Statement showing the various articles tested at the Government Test House, Alipore, during the year 1927-28.

(*Vide* para. 58 of the Report.)

Serial No.	Article.	Serial No.	Article.
1	Acids.	41	Copper plate and ingot.
2	Alumina ferric.	42	Copper rod.
3	Aluminium ingot.	43	Copper sheets.
4	Aluminium sulphate.	44	Copper sulphate.
5	Ammeters.	45	Copper tubing.
6	Ammonium sulphate.	46	Copper, water spacestays.
7	Anticorrosive & Antifouling composition.	47	Cordage (hemp).
8	Antimony.	48	Cotton absorbent.
9	Asbestos.	49	Cyanite (calcium).
10	Asbestos sheets.	50	Deposit lodged in water jacket and removed from boiler.
11	Ashes.	51	Deposit of carbon taken from an oil engine.
12	Asphalt	52	Deposit of scale from the water jacket of a Diesel Oil Engine.
13	Axle guards.	53	Deposit taken out of a pipe from Aeroplane.
14	Benzene.	54	Drill twist taper shank high speed.
15	Benzol.	55	Efflorescene from Bricks.
16	Bitumen.	56	Erasers, steel.
17	Blankets.	57	Fabrics, cotton.
18	Bolts & nuts.	58	Fabrics, woollen.
19	Bottles, glass.	59	Fans and Regulators (electric).
20	Braids & threads, metallic.	60	Fibre.
21	Braids, gold.	61	Fibre boards, compressed.
22	Brass bar.	62	Fire clay.
23	Brass rods.	63	Fish bolts.
24	Brass sheets.	64	Fish plates.
25	Bricks.	65	Flux.
26	Cables.	66	Galena.
27	Canvas.	67	Gauge, wire standard.
28	Carbide (calcium).	68	Gauges, pressure.
29	Cells hydrometer.	69	Glue.
30	Cement.	70	Glycerine.
31	Chains.	71	Greases.
32	Chalk.	72	Gunmetal.
33	Clay.	73	Gur.
34	Cloth of various descriptions (Woollen & Cotton).	74	Hacksaws.
35	Coal.	75	Hessians.
36	Coke.	76	Hooks, drawbar.
37	Concrete blocks.	77	Hooks, lifting.
38	Concrete cubes.	78	Hose, Canvas.
39	Concrete cylinders.		
40	Copper ingot.		

APPENDIX XVII—*contd.*

Serial No.	Article.
79	Hydrometer.
80	Impurities of oil fuel.
81	Ink.
82	Iron, angles, test pieces.
83	Iron bar, Yorkshire (" Lowmoor ").
84	Iron, cast, test pieces.
85	Iron ore.
86	Iron, wrought.
87	Iron, wrought, bar.
88	Iron Yorkshire.
89	Kankar.
90	Knives.
91	Lacquer.
92	Lamps, electric.
93	Lead foils.
94	Lead foils, tinned.
95	Lead, pig.
96	Lead seals.
97	Leather spindle bands.
98	Leather straps.
99	Lime.
100	Linseed cakes.
101	Mahwa berries.
102	Manganese and Manganese ores.
103	Mercury perchloride.
104	Metal, antifriction.
105	Metal, bearing.
106	Metal, gun.
107	Metal, type.
108	Metal, white.
109	Metal, Wota.
110	Meters, electric.
111	Mortar briquettes.
112	Mortar, cement & sand.
113	Naphthalene.
114	Oils, creosote.
115	Oils, fish.
116	Oils, fuel.
117	Oils, kerosene.
118	Oils, lubricating.
119	Oils, vegetable.
120	Padlocks.
121	Paint Remover (Effacer).
122	Paints & Pigments.
123	Paints dryers.
124	Paulins.
125	Petrol.
126	Phosphoric copper.
127	Pink quartzite.
128	Pins, bearing for hinges.
129	Pipe, galvanized.
130	Pipe, iron cast.
131	Pipes, stoneware.
132	Pitch.
133	Plates, bearing.
134	Plywood.
135	Polish, French.
136	Potassium-ferro-cyanide.
137	Putty.
138	Rails.
139	Rivets, mild steel.
140	Ropes of kinds (hemp, manilla, wire, etc.).
141	Saltpetre.
142	Sand.
143	Scale taken out from tube of economiser.
144	Scissors.
145	Screw couplings.
146	Scum from surface of water.
147	Seats, rail.
148	Serges, woollen.
149	Shackle, anchor, joining.
150	Shackle, chain, wrought iron.
151	Shellac.
152	Silica rock.
153	Silica sandstone.
154	Sleepers, cast iron Peapot, Universal & reinforced concrete.
155	Sleepers, ferro-concrete.
156	Sleepers, steel with saddle.
157	Sludge from top of concrete.
158	Soap.
159	Solution, water-proofing
160	Soorki.
161	Spirits.
162	Steel, cast, test pieces.
163	Steel, drillings.
164	Steel, high speed.
165	Steel, laminated spring.
166	Steel, mild, rods, angles, bars, plates.

APPENDIX XVII—*contd.*

Serial No.	Article.	Serial No.	Article.
167	Steel, mild, test pieces.	181	Tin Tetrachloride.
168	Steel, rolled, joist, beam and channel.	182	Tincture steel.
169	Steel, spring flat.	183	Turpentine.
170	Stone ballast.	184	Twine (jute, hemp, etc.).
171	Stone block.	185	Vacuum brake fittings.
172	Strings, coir.	186	Varnishes.
173	Switches, electric.	187	Voltmeter.
174	Tar.	188	Water.
175	Thermometer.	189	Wax.
176	Thread, cotton.	190	Wires, copper, steel, etc.
177	Threads, gold.	191	Yarns, cotton.
178	Threads, silver.	192	Zinc ingot.
179	Tin.	193	Zinc plate spelter.
180	Tin, block, Penang brand.		

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